A Study of Employees' Reactions to Change, Motivation and Commitment at a Major power Generating Plant

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I certify that this thesis is the true and accurate version of the thesis approved by the examiners

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ABSTRACT

Since the early 1990's the power industry has been characterised by radical and continual change at every level. This longitudinal case study conducted over a twelve year period assesses the effects of these organisational changes on the commitment and motivation of employees within the power plant.

Primary data collected from within the plant via a self administered staff survey, focus groups and focused interviews was validated using secondary data from industry and Government publications.

Results from this study indicate that employees recognised the company's success, but employees' were unsure about their future employment within the organisation. Moreover, results also indicate that employee commitment is dependent on a number of factors being evident within the workplace: Having the feeling of: being involved in decisions affecting their job, satisfaction with a job done well and pride in working for the organisation.

This case study has contributed to knowledge at two levels

The study proposes a theoretical model of managing change developed to assist academics and practitioners understand and acknowledge the processes that need to be in place in order to encourage a more inclusive approach thereby minimising the chance of resistance to change. Key to the process is the culture and leadership style at each stage of the change process. Moreover, more than one culture type can be in play at different levels within the organisation at any one time.

The study has determined an interlinking and interdependent association of factors regarding change at three levels within the organisation. It is argued that an awareness of this interlinking and interdependence of factors will assist managers to more strategically manage within their organisations in such a way that is more likely to lead to positive outcomes including increased organisational commitment and motivational levels.

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Chapter One: Introduction

1.1 The Rationale for the Study

This empirical study seeks to assess the effects of organisational change within a major power generating plant. Over a twelve-year period, from1990 to 2002, the plant experienced three major change programmes:
Each of these changes had an impact on organisational performance, as well as on policies, procedures, work organisation and employee relationships. Each of these changes had its implications for employees' workload and the subsequent increase in stress levels, resulting in a knock on effects to their motivation and commitment towards the organisation.

The impending privatisation of the UK Electricity Industry heralded the appointment of a new Chief Executive in 1989. In the run-up to vestature in 1991 the company began a major re-organisation programme across all departments and locations within the company. The outcome of this process was a reduction of staff numbers, mainly through early retirement and voluntary severance, as well as the non-replacement of vacant posts. The plant was not exempt from this exercise, resulting in a reduction of staffing levels from 280 to 240 employees in 1998 and to 190 employees by 1992.

The repowering project was developed in-house and necessitated an investment of £220M. The objective of the project, which started in March 1998 and was completed in September 2000, was to make the power plant the biggest generator of electricity in the world and the most flexible plant in the UK (Staff Magazine, 2000,

July, Issue 8, p.11). Nine months into the plant repowering project the company was merged with another one. The newly created company became a vertically integrated energy generator and supplier, whose core operations included the operation of power stations, electricity transmission and distribution and supply of electricity and gas products and services in the retail market.

The three major changes, as outlined above, have had implications for the employees, shareholders and customers. The shareholders and customers have had a positive experience as witnessed by increases to operating profits by 24% over five years (1999 -2004), and to earnings per share by 35% over the same time period (Company Annual Reviews 1999-2004). However, energy bills were reduced by 10% (in real terms) over a five-year period from 1999 to 2003. The employees over the same period have had a negative experience, as perceived by the plant staff following a reduction of staffing levels over the period 1985 to 2004. The irony of the situation was that most of the plant employees were also shareholders and customers of the company. The choice facing the employee was to accept the financial benefits as a shareholder and customer, and at the same time, remain as an employee, with all the perceived downsides. It was the above dichotomy for plant employees that inspired the author's choice of research topic for this study in an attempt to determine the factors that might influence employees' motivation and commitment towards their employer.

1.2 Aims and Objectives of the Study

The main aim of this study is to assess the effects of change programmes on employees' commitment and motivation over a twelve year period (1990 – 2002) to determine:

- The factors that influence the positive or negative reactions of employees towards change programmes.

- The extent to which organisational performance influences employees' commitment and motivation to their employer.

In order that the above research objectives can be met the following research questions had to be answered:

- Why do employees resist change programmes?

- To what extent is employee commitment and motivation influenced by and related to company performance?

1.3 The Conduct of the Study

As it is explained in the methodology chapter primary data were collected from within the generating plant in the first instance, and validated using data from within the company as well as data from industry and government publications, and research

carried out within companies from different and similar industries (secondary data). Data were collected through the use of questionnaires and interviews, as explained briefly below.

Staff Attitude Survey

The staff survey (questionnaire) was viewed as an important instrument for data collection. The questionnaire was designed, in such a way as, to capture data relevant to the research questions. The researcher was faced with making a decision at this stage. That was to design the questionnaire from scratch or to adopt an already developed and tried one. The later option was chosen for the following reasons:

- Plant employees had taken part in a company wide survey in 1995 and in 1997, designed to measure their attitude toward change and leadership within the organisation; and that
- Data from both surveys (secondary data) could be used as base data for comparison with data from this study.

Interviews

Data were collected using small groups of staff rather than individual interviews because it was felt that such groups would generate discussion from within the group, thus requiring less input from the researcher than a one-to-one interview. This would ensure that any data generated were purely the interviewees' perceptions rather than being directed and/or influenced by the researcher. In addition, it was felt that the ability to discuss the phenomenon with peers in a small group format would facilitate

a greater depth of discussion among participants than just with the researcher. It would also help to uncover shared perceptions of the groups the mechanisms used to achieve the above were focus groups and focused interviews.

Focus Groups

The method chosen in selecting the respondents to take part in the focus groups was the probability sampling method. Many sub-sets could have been used. They could have been divided as male/female, full time/part time staff, but the plant population was divided into four sub sets representing the following sub groups: managerial, administration/clerical, industrial, professional and technical. Employees were placed within one of these sub-sets according to their role within the organisation, to aid the interpretation of data and help to identify any variances between departments within the plant. In total, 30 employees were interviewed out of a total population of 100 staff in the plant, representing a sample size of 30 percent.

Focused Interviews

These interviews were carried out across the operations shift teams over a two-week period. The shift teams, more than other teams within the plant, had borne the major part of the change programmes over the twelve-year period. They had to adjust to the introduction of new technology, disruption to shift patterns, and restructuring of systems and changes to the interfaces between the plant and head office.

Statistical Analysis

In phase one of the analysis, data from the staff survey were sub-divided into four tables. Each table compared the responses within the main categories between 1995,

1997 and 2003. Data presented in each table represent the percentage of respondents who agreed with each statement within the survey. The percentage figure presented is a combination of those who strongly agreed plus those who agreed with each statement. The remaining responses (neutral, disagree, and strongly disagree) were deemed to have disagreed with each statement. Each table is designed to represent a separate set of conditions as outlined below:

- *Positive Response* – represents an **increase** of **> 10** in percentage of respondents that agree with the statement between 1995 and 2003.
- *Negative Response* – represents a **decrease** of > 10 in percentage of respondents who agree with the statement between 1995 and 2003.
- *Flat Response* - represents a move of < 10 in percentage of respondents who agree with the statement between 1995 and 2003.
- *Miscellaneous Response* - represents a varied response with the statement across the three surveys between 1995 and 2003.

The second phase of data analysis was to transfer survey data into MINITAB. The following strategy was developed to aid the analysis of data:

- Chi-Squared Goodness of Fit Test - This test was used to assess the significance of the response rates from the survey with respect to the years of service and the respondents' department. Furthermore, the null hypothesis of *Ho: the response rates are equal across the population* was tested, if this was proved not to be the case then the alternative hypothesis of *Ha: the response rates are not equal across the population* was adopted.
- One sample t Test – In order to test the significance of the results obtained from each question a null hypothesis of *Ho: the mean value equals 3* will be

adopted. Moreover, if this proved not to be the case then the alternative hypothesis of *Ha: the mean value does not equal 3* was adopted.

- One Way ANOVA – Are there any differences in the average strength of agreement amongst sub-groups (the respondent's department and years of service).
- Factor Analysis – This technique was used to identify and simplify the complex data into factors which reflect the correlation of the variables (survey questions) with factor (survey categories).

1.4 The Scope of the Study

As outlined above this study seeks to access the effects of organisational change within a major power generating plant. The achievement of this aim necessitated the review and collection of data from the following three main sources:

1. The political and socio-economic polices of differing governments between the late 1970s till the late 1980s (External Environment).

2. The organisational and plant changes to systems, procedures, culture, structures, and processes in an attempt to map the company's success within the newly formed energy market (Internal Environment)

3. The collection of data from within the power plant through the application of staff attitude survey, focus groups, and structured interviews. Furthermore, secondary

data such as company financial reports, staff magazine articles, management circulars, and local team briefings (Internal Environment) were also used.

In order to properly assess the effects of change within the power plant it was necessary to conduct this study by including the external forces within the growing Energy market (competition) and the consequential knock on effects for the Organisation.

1.5 Outline of the Thesis.

After this introductory chapter which presented the rational for the study, the aims and objectives of the study, the conduct of the study, and the scope of the study, there are seven more chapters comprising this thesis as follows:

Chapter Two: The Power Industry in the UK: an Overview

This chapter examines and reviews the privatisation of the UK Electricity Industry. Firstly by reviewing the industry pre - privatisation (1947-1989), and secondly by reviewing the post privatisation years from 1990 to 2002, which is the period covered by this study.

Chapter Three: The Company and Plant: A background to the case.

This chapter outlines, firstly, the internal changes made to systems, procedures, structures and processes within the company in the first instance and, secondly, the subsequent changes made to systems, processes and procedures within the power

plant. In both instances these changes are as a direct result of the privatisation and opening up of the market within the electricity industry.

Chapter Four: Managing Change and Employee Motivation: A Review of the literature

In the first part of this chapter the literature on change management, its concepts, theories and models is reviewed. The second part provides a review of the literature on organisational behaviour, its concepts, theories, and models pertaining to employees' motivation and commitment towards the organisation, in particular the influence each has on the effectiveness and performance of the organisation. The discussion part of the thesis will analyse these theories and models against the experiences of change that have been found from the case presented in this study.

Chapter Five: Methodology

The first part of this chapter will review the research epistemologies and methodologies which influence researchers within the social sciences field. The second part of the chapter will outline the methodology and issues relating to case study research because this thesis is based on case study research. The third part of the chapter will focus on the process of conducting a single case study methodology in order to address the research questions.

Chapter Six :Data Analysis and Presentation of the Findings

This chapter outlines the findings from both primary (questionnaires and interviews) and secondary data (company annual reports, staff magazines, and internal reports). Data are presented in both contextual and graphical format, under the following

headings; company performance, change, motivation, commitment, and general survey analysis. These findings will form the basis for the discussion, the main recommendations and conclusions from the study.

Chapter Seven: Discussion

In this chapter the findings are analysed and discussed in relation to the literature on managing change, privatisation and the socio-economic context of Scotland.

Chapter Eight: Conclusion

This chapter starts with a summary of the main issues covered in this study and then reconsiders the research objectives in order to establish the extent to which they have been. Therefore the main contributions of the study to knowledge in theory and practice are discussed, and recommendations for improvements are made. Finally the main limitations of this study are discussed and a proposal for further research is suggested.

Chapter Two: The Power Industry in the UK - an Overview

2.1 Introduction

Since the early 1980s, the United Kingdom (UK) has privatised the majority of its natural monopoly utilities, with Telecommunications (1984), Gas supply (1986), Water and Sewerage services (1989), Electricity supply (1990), and the Railways (1993 – 1996). The decision to privatise these 'natural monopoly' utilities implied a rejection of the previously held argument justifying public ownership, which had its origins in the perceived difficulty of preventing the abuse of the market place under private ownership as well as the duplication of assets in industries which were characterised by large economies of scale (Pollitt, 2000). Thus, the utility privatisation programme implemented between1984 and 1996 both required and facilitated a radical revision of economic thinking with regards to these 'natural monopolies' (Helm, 2001). The rest of this chapter will examine and review the privatisation of the UK Electricity Industry; firstly by reviewing the industry pre-privatisation (1947-1989) and secondly by reviewing the post privatisation years from 1990 to 2002. Furthermore, Appendix 1 gives an appraisal of the UK and Scottish Generation business post privatisation era.

2.2 Energy Market Pre- Privatisation.

In 1947, the electricity industry along with several other "key industries" was nationalised by the then Labour government. All segments of the industry became

state owned and operated. The newly nationalised electricity companies comprised mainly of the country's generation capacity, the national grid, and 12 semi-autonomous regional distribution boards in England and Wales with two vertically integrated companies in Scotland (Scottish Power and Scottish Hydro Electric) and one vertically integrated company in Northern Ireland.

The Electricity Act of 1957 established a Central Electricity Generating Board (CEGB) in England with responsibility for control over the operation of electricity generation, transmission facilities and all related investment decisions. The 12 regional boards remained semi-autonomous. The industry was regulated through the Electricity Council. The method of regulation employed was an inexact and controversial measure of long run marginal cost in order to construct a bulk supply tariff, equivalent in monetary terms to the price charged to the distribution companies by the CEGB.

The Electricity Act of 1983 was designed to encourage the growth of independent power producers. The spirit of the act was meant to remove the barriers to entry to non-utility generators as well as providing independent producers of electricity open access to the national grid. Prior to this act becoming law, entry to the industry was prohibited. The Act required the CEGB to purchase electricity from private producers at a price the CEGB would have incurred to produce the same quantity of electricity (Chesshire, 1996). Unfortunately the act failed in totally removing the unfair access to the grid that existing power producers had over new entrants (Gen Knowledge, 1998).

The 1989 Electricity Act laid the legislative foundation for the restructuring and privatisation of the industry. The act resulted in a change of ownership from state to private investors, with the government retaining the 'golden share' in each of the companies. Employees were encouraged to invest in their own local electricity company and, more significantly, the introduction of a competitive market. Essentially, competition was introduced into electricity generation and supply (supply being the purchase of electricity from a generator and its sale to a final consumer). In transmission and distribution a system of independent regulation was introduced because it would not have been practical to install duplicate distribution networks. The act made provision for a regulatory system headed up by a Director General of Electricity Supply, who was answerable to the President of the Board of Trade (England and Wales) and, in Scotland, to the Secretary of State for Scotland. The Director General was responsible for ensuring an efficient and competitive electricity market.

All the major generating companies were required to sell the electricity they produced into an open commodity market known as the Pool. The Pool is a simple name for what was in effect a very complex trading mechanism. The Pool was set up in about a year, but there was continuous evolution and development. Essentially, each generating unit had to declare by 10 am each day its availability to the market together with the price at which it was prepared to generate for each and every half hour of the following day. The units were then called to generate by the NGC in ascending order of price. The most expensive unit used established the system marginal energy price which all others receive for that half hour. There was an additional separate pricing mechanism designed to provide an incentive for the provision of generating capacity.

This form of virtual real-time pricing inevitably tended to produce volatility in prices which was not necessarily welcomed by either buyers or sellers. To overcome this, the Pool was overlaid with both short and long term contracts to make capacity and energy prices more predictable for both customers and generators. These so-called Contracts for Differences (CfDs) typically involved an agreed 'strike price' (an agreed price per kWh) for a specified quantity of electricity for a specified period of time. If the Pool price for electricity was below the agreed strike price for any half hour, the supplier would pay the generator the difference between the two prices. Similarly, if the strike price was below the Pool price, the generator would pay the difference to the supplier. CfDs were essentially financial instruments, the main purpose of which was to hedge risk. About 90% of the electricity sold by the major generating companies was covered by contracts, both with the Regional Electricity Boards as well as individual large customers.

2.3 Energy Market Post Privatisation

One of the main elements of the Electricity Act of 1989 necessitated the restructuring of the industry prior to its flotation on the stock market. Initially the CEGB was restructured into four separate organisations: two power generating producers; a transmission company; and a distribution network consisting of twelve Regional Electricity Companies (RECs). These companies were created from the former Regional Boards. The non-nuclear power stations of the CEGB were assigned to two new companies, National Power and PowerGen. National Power accounted for 46% of electricity in England and Wales with PowerGen accounting for 28% of generation

within the same geographic areas Reference. Ownership of the National Grid was initially transferred to the RECs. However, in December 1995, the RECs were required to divest their shares in the national grid, at which time the National Grid Company was formed. In December 1990 the RECs were the first segment of the industry to be auctioned off to the public. Following privatisation the RECs underwent major change in their operating procedures with the introduction of regulatory control over the 'wires business' (distribution), which was to be continually regulated, and the marketing branch of the business which was to be gradually de-regulated.

In Scotland, vertical integration was maintained in the new structure with the creation of Scottish Power and Hydro-Electric. As in England and Wales, nuclear generation was assigned to a separate company, Scottish Nuclear. The Government privatised parts of the two state-owned nuclear companies, Nuclear Electric and Scottish Nuclear, in July 1996. A holding company, British Energy, was created and registered in Scotland, with Nuclear Electric and Scottish Nuclear as wholly owned subsidiaries. Both companies continued to operate as separate entities, with their own boards of directors. Scottish Nuclear operated its two advanced gas-cooled reactor (AGR) plants in Scotland and Nuclear Electric its five AGRs and one pressurised water reactor plant in England and Wales. Nuclear Electric's six Magnox plants were transferred to a state-owned company called Magnox Electric. In Northern Ireland, the four power stations were purchased by a number of competing generators in 1992. Northern Ireland Electricity became responsible for transmission, distribution and supply, and was successfully floated on the Stock Exchange in 1993.

There are three major electricity companies in Scotland, namely Scottish Power (SP), Scottish and Southern Energy (SSE) and Scottish Nuclear (SN), which became a wholly-owned subsidiary of British Energy in 1996. SP and SSE are vertically integrated utilities, which generate, transmit, distribute and supply electricity. SN, on the other hand, is a generator connected to SP's transmission system. Exclusively SP and SSE purchase SNs output, amounting to some 50% of Scotland's electricity requirements. When the industry in Scotland was restructured a number of contractual arrangements were put in place to provide each company with a mix of generation sources. For example, SSE provided 200 MW of hydro capacity to SP under contract, while SP provided SSE with 600 MW of coal-fired capacity. Apart from the nuclear stations, which were vested in SN, the only major generation asset to change hands was the 400 MW pumped-storage station at Cruachan, which previously belonged to SSE and is now owned by SP. The Scottish companies are connected to NGC's transmission system in England and Wales via an interconnector.

The licenses for SP and SSE make provision for generation trading arrangements. However, both companies had capacity available to them, either owned or under contract, which is currently in excess of their requirements. In addition, they had a number of 'must take' contracts for electricity purchases and fuel. As a consequence, the Regulator decided not to exercise his powers requiring the companies to adopt a formal trading system within Scotland, although trading does take place on a voluntary basis. As the prospects for new generation capacity increased, the Regulator reviewed the need for a detailed set of trading arrangements (EA, Introduction to the UK market, 2002, p.6).

To ensure that appropriate arrangements were made for the security of power supply, each company was required to provide the Regulator with an annual statement describing the measures, which were being undertaken to ensure that sufficient generation capacity would be available to meet territorial demand for the following years. The absence of a transparent wholesale market in Scotland led the companies to agree arrangements for alternative suppliers with the Regulator. In effect, these arrangements make electricity available in Scotland from each company to alternative suppliers at the same price as purchases from the Pool in England and Wales. This ensured that customers in Scotland had the same opportunity to contract with an alternative supplier as did customers in England and Wales. On the other hand, the two companies took full advantage of the inter-connector with England and Wales to trade in the Pool. To enhance the generation capability of both companies, the interconnection with England was upgraded from a nominal 850 MW to 1,600 MW, with plans in place to increase this capacity to 2,200 MW. Scottish Power reached agreement with Northern Ireland Electricity for the construction of a 250 MW DC link between Southern Scotland and Northern Ireland. The export capability of the Scottish companies was expanded by 1,600 MW at the start of the new millennium. The first Scottish Renewable Order (announced in December 1994) was arranged to obtain 76 MW of new generating capacity from 29 schemes using wind, water, waste and biomass sources. A second Order was launched in November 1995 for 70-80 MW of additional capacity (Generation Knowledge,1998).

The Electricity Act of 1998 created the Office of Electricity Regulation (OFFER), which was primarily responsible for electricity regulation reporting to the Director General (see 2.2 above). Incentive regulation is often referred to as "price capping"

known within the industry as the Retail Price Index minus an X factor (RPI-X) set by the regulator. Under the RPI-X framework, companies financially benefit by performing better than the efficiency targets set by the regulator (Bishop, Kay, and Mayer, 1996, pp15-31). The company is able to take advantage of the difference between the cost target set by the regulator and the cost level they are able to achieve. The incentive for the company is to reduce costs to the lowest sustainable level, thus out performing the target set (the resources allowed less the resources actually used to deliver the required level of service), savings can then be redirected to other initiatives within the company, or in some cases paid to the shareholders. Customers benefit in the medium to long term because the regulator is able to set prices at a lower level to reflect the lower costs of production. Therefore, in the next regulatory control period the company will need to continue to reduce costs to attain or out perform the new regulatory target. Similarly, there are strong incentives for not exceeding the target as prices to customers are capped, any short fall in funding has to be met out of company's profits.

The introduction of Incentives was designed to encourage desirable behaviour and/or discourage undesirable behaviour. In the context of the electricity industry incentive regulation (RPI-X) can be defined as the use of rewards and penalties to induce the utility to achieve desired goals where the utility is afforded some discretion in achieving these goals (Lewis and Garmon, 1997). For both existing and new generators, gas has become the preferred fuel for new power generation plants in the UK for a number of reasons. In comparison with coal-fired stations, new combined cycle gas turbines (CCGTs) involve low capital cost. Their short construction times allow for greater flexibility in deciding when to build new stations, and their modular

design makes them ideal for turnkey contracts which place full responsibility on plant and equipment suppliers. CCGTs are particularly attractive as they also offer major environmental advantages. In comparison with coal-fired plant, CCGTs consume 27% less fuel, emit 58% less carbon dioxide and 80% less nitrogen oxides for each unit of electricity generated (Gen Knowledge (1998. p. 3.18). Moreover, they emit no sulphur dioxide, and thus represent one of the best ways of tackling environmental problems such as acid rain and global warming.

British Energy, which provides approximately 20% of the UK's electricity, found it more and more difficult to cover its generating costs and was on the verge of bankruptcy in 2002 (Taylor, 2002). In some circles this was seen as a positive development in the sense that British Energy's difficulties could be attributed to its inability to compete with lower cost generation facilities such as gas turbines. However, nuclear power provides base load capacity which made it inappropriate to subject Nuclear Energy to the same competitive rigour as other marginal producers. The electricity trading pool, as discussed in 2.2 above, was abandoned as a direct result of market power abuse from within the generating sectors main players, leading to a divestiture of the generating capacity (Littlechild, 2001). The Pool was replaced by the New Electricity Trading Arrangements (NETA) in March 2001.

NETA was designed to weaken the power that large generators were able to exercise in the Electricity Pool. Under NETA, electricity was traded between generators and electricity suppliers through bilateral contracts and on power exchanges, with only a small volume of electricity being priced by the central 'balancing mechanism', through which the National Grid Company balances output with demand (Electricity

Association, 2002). The introduction of NETA accelerated the separation of business units within the vertically integrated companies. This separation was deemed necessary in order to limit the ability of system operators, who also owned generation assets, discriminating against other generators in favour of their own generating units. To comply with the regulations, each company was required to set up new businesses (Generation, Supply, and Transmission and Distribution) under the umbrella of the main company. This consolidation process gave companies in 2001-2003 the opportunity to become more competitive amidst falling wholesale prices and competition for customers. The business separation is typically functional or accounting separation, where the supply and generation businesses share owners, management, staff and information while requiring a separate accounting practice for each unit.

2.4 Conclusion

The privatisation of the electricity industry did not occur all at once, it evolved over a six year period from 1990 to 1996, creating different structures within the English, Welsh, Scottish and Northern Irish industries. However all were based on the same overriding principles. Firstly, power is traded through an open commodity market, the Pool. Secondly, the generators no longer had an assured market nor did they have an obligation to supply power to the National Grid Company as they did previously. Each generator has to compete for its share of an increasingly competitive market. Forty six generation licenses have been issued in England and Wales since privatisation, and there are already 22 independent generators selling electricity into

the Pool. Competition has changed the emphasis in the way the electricity generation business is managed. Although in the past the whole of the industry made a profit (for its owner, the Government) and had an excellent record in fulfilling its statutory duty to 'keep the lights on', it was engineering-led rather than customer-led, and tariffs were established on a cost-plus basis. At privatization in 1990 there were 14 Public Electricity Suppliers (PESs) in the UK. These PESs were to all intents and purposes area boards responsible for the supply and distribution of electricity in their authorised areas. Increased competition in the market, tightening of the regulations and the legal requirements to separate the supply and distribution business arms of the company, has led to a major restructuring of the industry. The two Scottish companies and a few in England and Wales remain fully integrated, that is, they have both supply and distribution businesses.

The above changes to the electricity industry have necessitated each of the main players operating within the electricity industry to make commercial and structural changes within their respective organisations. The next chapter deals with this aspect of the privatisation process within the company and in particular the power plant being the main subject of this thesis.

Chapter Three: The Company and Plant - a Background to the Case

3.1 Introduction

This chapter outlines firstly the internal changes made to systems, procedures, structures and processes within the company in the first instance and, secondly, the subsequent changes made to systems, processes and procedures within the power plant. In both instances these changes are the direct result of the privatisation and opening up of the market within the electricity industry as outlined in the previous chapter. The changes were reviewed over a twelve year period from 1990 – 2002. The anecdotal evidence contained in this chapter was obtained by the researcher from secondary data and being a member of staff during the time of the change taking place.

3.2 Company Overview

The company is a vertically integrated energy generator and supplier whose core operations include the operation of power plants, electricity transmission, distribution and supply of electricity plus gas supply and services/products in the retail market. The company's generation business has a portfolio of efficient, flexible and diverse generation capacity operating in the wholesale and energy trading markets. The generation and supply businesses account for about 85% of the company's total revenues and serve in excess of 3.3 million electricity customers (Datamonitor, 2004).

3.2.1 Privatisation

The privatisation of state owned monopolies came about as a direct result of the economic and monetary policies of the then Conservative government (1979-1997). The main objective of privatisation was to raise the efficient use of the public purse by:

- Removing any political involvement in management;

- Removing the 'soft budget' constraint of tax payer support to State owned companies whilst improving the disciplines of the market;

- Imposing a profit based objective in place of a rather ill-defined public interest criteria; and

- Providing incentives for managers - ownership and share capital.

The decision to privatise the Electricity industry was significant in determining the direction, efficiency and performance of an industry which had virtually stagnated from its inception in the 1920's. Objective one above was congruent with the then conservative governments' ideology of '*The government of business was no longer the business of government'*. This was the real reason why privatisation was imposed on the electricity industry during the 1980s and 1990s. Moreover, through privatisation the burden of state funding was removed from the state owned organisations, thus releasing more funds (money) for basic public services such as Health and Education. Furthermore, the privatisation of the UK utilities was not just a

simple transfer of ownership from public to private hands but involved the liberalisation and structural reform of the utilities. Moreover, the government appointed an industry regulator to impose and regulate competition within the industry.

In the pre- privatisation era the Company was managed at the top level by a Chief Executive to the Board (CE) who reported to the Scottish Secretary. December 1988 saw the retrial of the then CE after 42 years service within the electricity industry. Early 1989 saw the appointment of a new Chief Executive Officer (CEO) from outside the industry. The new CEO's main task in the early years of privatisation was to turn an arm of government into a commercial organisation. In the run up to vestature in 1991, the company engaged in a major re-organisation programme across all departments and locations within the company. The CEO's aim was to make the company more competitive by harnessing the talent within the company and slimming down on manning levels. It was important that the organisation was able to respond quickly to changes in the external environment, and to remain competitive within the electricity market.

Following privatisation in 1991 the company embarked on a major programme of internal change to enable it to move from a top down management style to a bottom up and customer driven approach to management. The mechanism and catalyst chosen to deliver this strategy was a Customer Focused programme. The company invested in a full- time team of 17 members of staff, reporting directly to the CEO. The team members were seconded from various disciplines from within the company on an 18 months contract. Twelve members of the team had their contracts extended

by a further 18 months. The objective set for the team by the board of directors was to facilitate the change process across all levels and departments within the company. The new ethos of the company became 'customer satisfaction'. This was a completely new concept for the majority of staff, mainly within the support and engineering functions, resulting in a fundamental paradigm shift. This fundamental shift was reinforced by the new mission statement for the company – '*The Company's highest priority is delivering exceptional customer satisfaction. It also aims to be recognised as an outstanding company by its customers, staff, shareholders, community and suppliers'*.

Operating within these rapidly changing external and internal environments necessitated the need to introduce modern personnel procedures, more realistic and manageable salary structures, and more effective internal communication processes. These changes linked to the change in organisational culture saw the introduction of four major initiatives across the whole organisation (job evaluation, staff survey, open book management, and performance management. Each of these initiatives are outlined below:

The year 1996 saw the introduction of a 'job evaluation' scheme which resulted in the development of new company agreements for both permanent (which included the four main disciplines within the company - managerial, technical, industrial, administration and clerical) and contract staff. Twenty eight different salary scales were collated into a table of ten salary scales. The spread between the salary ranges became significantly lower, and the opportunity to move between scales, either through promotion and/or years of service became much more difficult. The new

'flatter salary scales' meant that clearly defined routes of advancement for staff became fewer and once an employee reached the top of their scale/grade there was no where for them to progress towards in monetary terms.

Feedback from the 1995 staff survey highlighted that staff were keen to know and understand more about the Company's competitive environment, business performance and direction. The directors, in response to this request set about introducing an Open Book Management (OBM) culture, where staff members were able to have a better understanding and knowledge of the company's financial position, including revenues and costs and inter- relationships between each division. The communication medium chosen to get the message across was three learning flowcharts as outlined below:

- The race is on – an overview of the changes in the UK electricity industry and the Company's market place.
- The Company's money flow – an overview of the company's financial flows; and
- New horizons and opportunities – an overview of the Company's strategy in response to the changing external environment.

Each flowchart was a pictorial representation based on key information and data supported by dialogue and key discussion through staff questions. The introduction of these flowcharts was a move by management, away from passive written communications, to a highly interactive discussion forum. Commenting on the benefit of the learning flowcharts the CEO stated:

> *"the flowcharts have been developed in response to staff feedback and opinion. Things like the staff survey, the directors' listening lunches and talkback have shown quite clearly that staff members want to have a greater awareness and understanding of today's commercial reality"* (Staff Magazine, 1998, March, Issue 225, p6).

The introduction of performance management as an effective management tool during this period meant that employees, armed with relevant company and commercial information, could discuss not only their performance but for the first time their development and career progression within a structured meeting with their line manager at least twice a year. This change within the company meant that senior and line managers required to unlearn long practiced, in some instances, management styles whilst adopting the new 'coaching style' of management. In the forward to the Performance Management Guide the Director of Human Resources stated:

> *"we want to work towards moving from saying 'you must do this task', to getting our people to 'want' to do it, even suggest how they might do it so that they learn and develop their potential. This is a coaching style of management which has benefits all round"* (Performance Management Guide, 1996, p.1).

As part of the company's continuing internal communications programme a series of eight videos entitled *'Making it Happen'* were produced in 1997 for viewing and discussion at the regular monthly team briefings. Written material was provided in support of the video content. Each video incorporated specific points at which the viewers were invited to pause and discuss the material presented. Subject matter

included de-regulation, company structure and corporate values. The corporate value's video was supplemented with a pocket book giving a summary of each of the values and how it should be interpreted. This initiative was designed as a communication exercise, giving staff the opportunity to understand broad business issues the company faced within the competitive electricity market, in particular the impending de-regulation of the whole electricity market.

3.2.2 Opening up of the Electricity Market

The new market arrangements were designed to make it as easy for domestic customers to change their Electricity Supplier as it is for them to change their Telephone Company or Gas Supplier. At the heart of the system of transfer was a data base in each area which recorded who the supplier was for each property in a particular area. In the UK electricity supply industry however, the product delivered is exactly the same no matter who supplies it. Customers may have a preference on how it is generated whether it is renewable or green, nuclear or hydrocarbon. The vast majority of customers will decide on who to purchase from based on price differential and the continued quality of service which meets or exceeds their expectations (Electricity Association, 2002). To announce the capping of electricity prices (RPI-X), the Director General of The Office of Gas and Electricity (OFGEM) stated:

> *"This a good day for customers. They will see lower prices, better quality of service, and continuing scope for attractive competitive offers* (OFGEM, 1999).

As electricity cannot be differentiated by source or quality, the challenge is to be the least cost producer and supplier. Since the inception of the 'market', all of the generating companies have implemented a range of measures to reduce costs and diversifying their fuel sources and the range of fuels used. For most of the companies this meant burning gas in new, more efficient Combined Cycle Gas Turbines (CCGT) plant, and securing supplies of gas by contracting for independent gas production or joining with others in exploration.

3.2.3 Company Merger

The increased competitiveness within the energy market resulted in the explosion of mergers and acquisitions, mainly from non UK companies. Moreover, the resultant merger of the organisation under study proved to be a success with improvement in Company performance. City analysts recognised that the promised synergy savings from the merger were met and bettered (annual savings of £175m equal to 291% increase on the original estimate of £60m). Secondly, a solid financial platform was constructed allowing the organisation to grow its business against a background of consolidating British energy market. The method used by the organisation during the merger process (shared service model) realised economies of scale within the "Resultant Organisation" (RO) thus positioning the organisation to take advantage of any future mergers or acquisitions. The rest of this section will outline and discuss the integration process that was employed by the organisation in order to ensure the continued success and performance of the RO.

Integration Process

In June 1998 the Chief Executive Officer (CEO) opened up discussions with the CEO of another distribution company with the objective of merging the two companies to create a company which would gain synergies in the belief that the 'whole is greater than the sum of the parts' (Kanter, 1989). Thus enabling the company to withstand any takeover bids by a third party. Moreover, in recommending the merger to the company's shareholders the Chairman stated:

> *"the merger will create one of the largest suppliers of electricity to domestic and business customers in the UK, with a good broad and well balanced base of generation, distribution and supply".*

The merger received regulatory clearance on 14th December 1998 heralding the start of the integration process as outlined below. The new RO commissioned an internal team managed by the integration manager reporting directly to the CEO. The main aim set for the team was to 'come up with quantifiable savings based on best practice' driven by the business need to:

- Become an effective competitor in the power supply business.
- Reduce cost in the regulated part of the business (power distribution): and
- Increase the margins in the supply business (power generation).

Moreover, each company's processes were benchmarked against each others whilst recognising the conditions and restrictions set out by the regulator, in an effort to implement the most cost effective and productive procedures and processes.

Explaining how the merger would affect staff the Integration Manager outlined the new groups' goal which was maximise group profits through:

- Controlling costs and improving efficiency
- Retaining and acquiring customers
- Investing and managing assets wisely
- Providing the right quality of service

Furthermore, the Integration Manager stated that:

> *"No matter what we do, each of us is responsible for contributing to this goal, by thinking how we spend our time, what resources we really need and how tasks can be improved for the benefit of customers. Just think every pound you can save is another pound added to group profits".*

In order to achieve the above goals and allay any fears and concerns employees had about the introduction of the new company ethos and culture the following policies and processes were adopted and implemented by the organisation:

- Employees of both companies were first advised of the merger via their respective internal communication systems. Moreover, face to face briefings were used to update employees on the planned changes. The aim of these communication sessions was to help employees understand the groups' aims and values.

- The newly appointed CEO visited various operational sites to chair question and answer sessions in an effort to gain employee's support as well as boosting morale for the changes.

- Employees were assured that there would be no compulsory redundancies, a point which will be discussed in more detail later in this chapter. Furthermore, the executive stressed that being part of a larger organisation would increase the possibilities of career development and personal growth.

Integration of Core Functions

Key to the success of the merger, support functions were centralised this process was designed to maintain uniformity of service throughout the group. This section examines how these support functions were integrated and the perceived resulting benefits.

Procurement and Supply Chain – The savings brought about in procurement because of the merger amounted to about £65 millions helping to increase the projected merger savings from £45millions to £95millions.

Information Technology Management – following the merger the IT investments in the north were stopped and the whole system was transferred to the south and the external information contacts were also centrally controlled. This enabled the company to reduce the cost of the operation of the system, software licences and updates plus reduced costs for system upgrades.

Human Resources – In the pre- merger, the two energy companies operated in the same industrial environment. They had similar employee policies, management patterns and unions, easing the centralisation process. Moreover, the head of Human Resources in company 'A' was a full member of the board but as part of the merger he was removed from the board. Furthermore, the new of Head of Human Resources reported directly to the CEO who had the final decision - making power to employ additional staff within the company. The integration of the Human Resources Department not only brought about monetary benefits (non filling of vacant posts) but also formed a platform for easy transfer of best practices across the group.

The merging with company 'B' was heralded as a merger of two companies whose strengths complimented each other (Staff Magazine, October, 1998, Issue No 231, p 6). In recommending the merger to shareholders the Chairman stated:

> *"the merger will create one of the largest suppliers of electricity to domestic and business customers in the UK, with a good broad and well balanced base of generation, distribution and supply"* (Staff Magazine, November, 1998, Issue 232, p3).

The newly created company became a vertically integrated energy generator and supplier, whose core operations included the operation of power stations, electricity transmission and distribution and supply of electricity and gas products and services in the retail market. The company's Generation division owns power stations in Scotland and England with a total capacity of 7000 megawatts. These power stations

are thermally efficient and are fuelled by gas, hydroelectric or wind (Datamonitor, Company profile, July, 2004, pp 4 – 5).

The new chief executive of the merged company commenting on the merger said:

> *"We'll look back in three years time and not recognise the old company. We'll have changed dramatically and I can already see change happening. It is up to all of us to mould this company into being the best in the world. When we get there we'll all have a lot to be proud of"?* (Staff Magazine, November, 1999, Issue 4, p.5).

The next section will review the effects the changes had within the power plant over the same timeframe (1989 – 2002).

3.3 Plant Overview

The power plant produces 50 percent of the company's Scottish generation capacity. The precise details of the station's design and operation are not important in the context of this thesis. However, to describe the plant in a manner useful to this thesis, it could be regarded as an open system which is reliant on the local community and the Scottish financial institutions for its raw materials and labour. The overall purpose of the plant is to efficiently use and transform the inputs in the shape of wages and jobs back into the local economy and financial benefits to shareholders and customers.

Each of the four change initiatives outlined in section 3.1 will be discussed below. The effects each had on the plant employees' motivation and commitment towards the company are discussed in chapters 6 to 8 of this thesis.

3.3.1 Privatisation

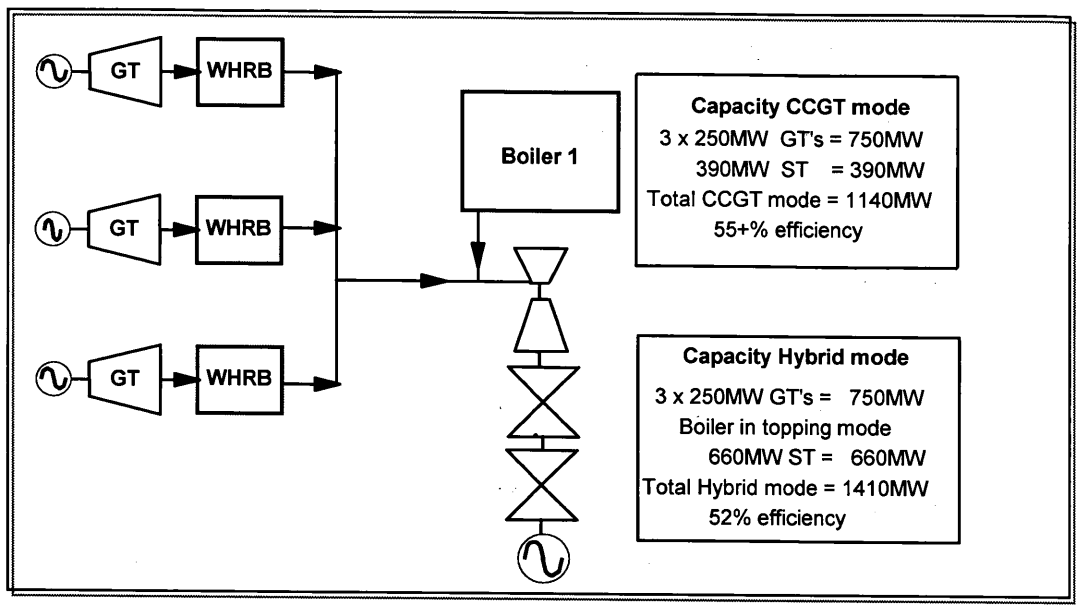
The outcome of privatisation was a reduction of staff numbers, mainly through early retirement, voluntary severance, and non-replacement of vacant posts. The plant was not exempt from this exercise, resulting in a reduction of staffing levels from 280 to 240 employees. The staffing levels were reduced by a further 50 staff between 1990 and 1992 to 190 employees. These reductions were achieved through the transfer of plant staff to other departments within the company, and the non-filling of vacancies created by staff resigning from the company. The company's submission to the stock exchange in 1998 forecasted synergy savings of £60m (Staff Magazine, March, 2001, Issue 12, p.9).

3.3.2 Repowering

The repowering of existing plant instead of newly built one is a technique gaining popularity world-wide as a means of producing high efficiency plant at a modest cost involving the addition of new high efficiency gas turbine plant to the existing system. The repowering project was developed in-house and necessitated an investment of £220M. The objective of the project, which started in March 1998 and completed in September 2000, was to make the power plant the biggest generator of its type in the world and the most flexible plant in the UK (Staff Magazine, July, 2000, Issue 8, p11). The Thermal Manager believed that the repowering project would help improve the plant's efficiency from 38 to 56 per cent, making it the most efficient in the UK

(Staff Magazine, November, 1999, Issue 4, p. 11). Figure 3.1 below shows the plant configuration that was needed to achieve these efficiency improvements.

Figure 3.1 Plant Repowering Schematic



Source: Plant Operating Procedures, 2002.

Fuel forms a large part of the operating cost of a power plant of this type and therefore any gains in efficiency produces considerable reductions in operating cost which helps the company achieve its financial targets as set by the regulator through price capping (RPI-X). Commenting on being the lowest cost generator, the Thermal Manager stated:

> *"being the lowest cost generator is important in the new competitive market. Getting to that lowest cost per Megawatt Hour means ensuring that the plant is best used in terms of manning levels, proactive rather than reactive*

maintenance, wise reinvestment, highest possible conversion of fuel to electricity, appropriate use of IT and a discipline to achieve consistency in the way the plant is operated" (Staff Magazine, November, 1999, Issue 4, p.11).

Moreover the Technical Services Engineer with 21years of service commented that

"without this repowering project, there really would be no future for the plant– it just wasn't efficient enough. Most people here realise that to keep the station going, we had to cut the cost of generation and that includes reducing staff numbers. When I first started here there were 340 employees. The staff and local community accept that it is better to have now 120 jobs than none at all" (Staff Magazine, July, 2000, Issue 8, pp10-11).

Due to its uniqueness within the electricity industry, repowering presented the plant staff and management with some challenges with respect to plant, processes and people. However, the prospect of repowering the plant was generally welcomed by the staff and local community. Table 3.1 below summarises the effects that repowering had on the plant in respect to Plant, Process and People.

Table 3.1 Plant Process and People

Plant	Process	People
○ Latest Technology	○ Technically Demanding	○ Staff Reductions
○ Automation	○ More Efficient	○ Retraining
○ Flexible Operation	○ More Cost Effective	○ New Working Practices

Source: Thermal Manager's presentation to plant staff (1999)

Appendix 3 details the stations plans to implement and deliver the above changes.

Approval in early 1998 by the Board for the repowering project triggered the generation business to commission a series of benchmarking studies. The aim of these studies was to measure the plant, processes and procedures against the company's main competitors. A major part of the benchmarking was a study carried out within the power plant by an audit team from Florida Power and Lighting (FPL). FPL were chosen as partners in this exercise because of the similarities with the company in terms of asset base, type of terrain operating within, and staffing ratios. The results from the audit carried out within the power plant prompted the audit team to conclude that:

> *"the plant has a good disciplined approach in following their key processes. Exceptional attention is being given to safety and environmental control as well as business processes and work management. The plant's processes are*

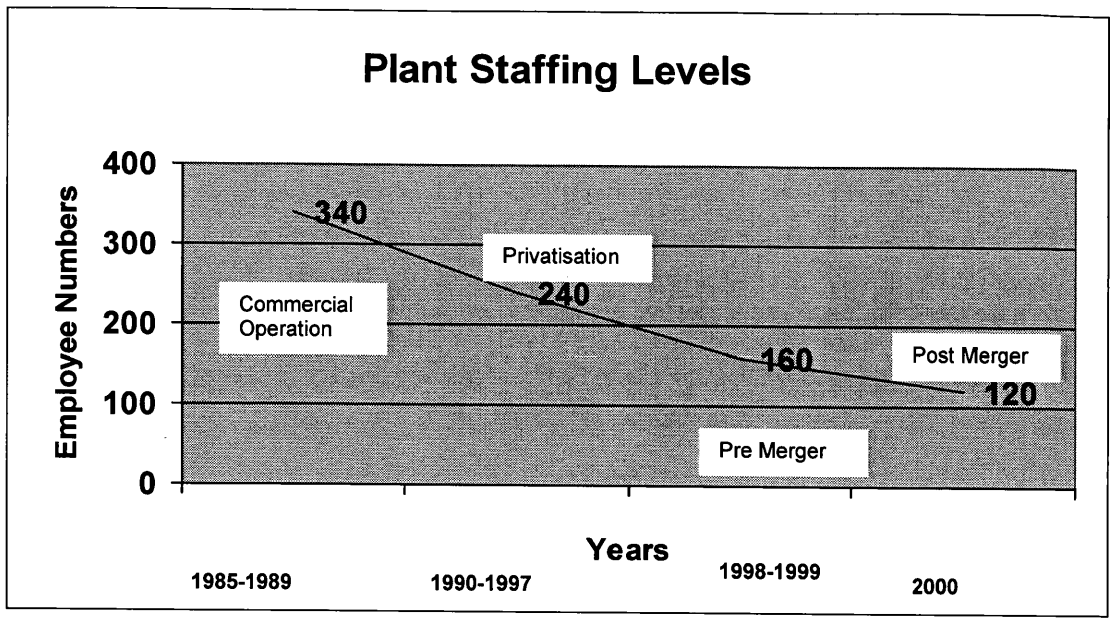
complicated and bureaucratic and as a result involve too many people and hand-off" (Thomas Witte, 1998, Plant benchmarking report, p.1).

Information from the benchmarking report was used by the plant management team as the catalyst for a review of existing plant configuration, processes and people within the plant. The team concluded that if staffing levels and business processes remained the same, the advantages of the new plant would be eroded and competitiveness would be marginalised. At this juncture the plant's management team assisted by the Thermal Manager undertook the task of looking at how the station could compete on productivity and overheads through the use of the new technology that would soon be at their disposal. The resulting staffing level was set at 160.

3.3.3 Company Merger

The contribution made by the plant towards the company's projected 'synergy savings' of £60m resulted in a staff reduction of some 40 employees resulting in only 120 staff in employment. This reduction was achieved through some staff being transferred to the newly formed central departments such as finance, information technology, human resources, and procurement. The remaining numbers were achieved through natural wastage, early retirement and voluntary severance packages (Staff Magazine, November, 1999, Issue 4, p5). Figure 3.2 below shows the plant staffing statistics from initial commercial operation through privatisation, merger, to the repowered plants commercial operation.

Figure 3.2 Plant Staffing Levels



Source: Plant Management Monthly Statistics (1985 - 2000).

3.4 Conclusion

In the run-up to vestature in 1991 the company began a major re-organisation programme across all departments and locations within the company. The outcome of this process was a reduction of staff numbers, mainly through early retirement, voluntary severance, as well as, non-replacement of vacant posts. The plant was not exempt from this exercise, resulting in a reduction of staffing levels from 240 to 120 employees. Therefore, the repowering project was developed in-house and necessitated an investment of £220M. The objective of the project, which started in March 1998 and was completed in September 2000, was to make the power plant the biggest generator of its type in the world and the most flexible plant in the UK.

Nine months into the plant repowering project the company was merged with another one. The newly created company became a vertically integrated energy generator and supplier, whose core operations included the operation of power stations, electricity transmission and distribution and supply of electricity and gas products and services in the retail market. Plant staff experienced a reduction of staffing levels as outlined in Figure 3.2 above and documented in Table 3.2 below.

The irony of the situation is that plant employees, in most cases, are also shareholders and customers of the company. The choice facing the employee was to accept the financial benefits as a shareholder and customer, and at the same time, remain as an employee, with all the increased workload resulting in higher stress levels and resistance to change.

The next chapter reviews the concepts, theories and models of managing change and employee motivation.

Table 3.2 Industry and Company History

Year	Electricity Industry	The Company	Generation Business	Power Plant
1989	Electricity Act – Restructuring and Privatisation of industry passed in Parliament.	State Ownership. Appointment of new CEO. Appointment of external management consultants. Weekly Executive meetings introduced.	Introduction of Key Performance Indicators.	Staffing review. Centralisation of financial, payroll and HR functions.
1990 - 94	Privatisation of industry De-regulation of market for customers consuming >100KWatts	Major re-organisation across all business units and Areas. Introduction of Customer Focus Programme company wide. HR director appointed as full board member.	Acquire 50% ownership of gas powered power station in England. Re-organisation of business – engineering and production combined to form the Generation business. Directors listening lunches introduced across all operational sites.	Skills Need Analysis programme introduced. Early retirement scheme introduced. Introduction of teaming concepts.
1995 - 97	Introduction of the electricity trading pool for generators. Introduction of price capping within the supply and distribution businesses.	**Staff Attitude survey administered across the company (1st).** Job evaluation system introduced. Performance management system introduced. Open Book Management concepts introduced. "Making it Happen" initiative introduced. **Staff Attitude Survey administered (2nd).** Energy Trading business formed under the Commercial Division.	Generation Director appointed as a full board member. Salary scales reduced as a result of job evaluation. Introduction of learning maps. Transfer of generation Planning, fuel purchase, and contract management to Energy Trading business.	Introduction of key performance indicators plant wide. Six monthly performance reviews introduced to all staff. Skills needs analysis scheme introduced. Early retirement packages agreed for staff.
1998 - 2002	De-regulation of complete energy market (all customers). Separation of business units.	Merger with another electricity company. HR Director removed as full board member. Generation Director removed as a full board member. Development of a common company agreement for staff.	Generation Control Room staff relocated to work along side the Energy Trading business. Generation Business re-designated to an O&M role working under the direction of the Energy Trading Business. Split of engineering and operations within generation.	Repowering project undertaken. Staff restructuring exercise completed. Salary scales consolidated with the distribution business as part of the common agreement. Centralisation of IT and Procurement functions. **Staff Attitude Survey (This Thesis)**

Chapter Four: Managing Change and Employee Motivation A Review of the Literature

4.1 Introduction

This chapter will review a wide range of theoretical positions which impact on the management of organisational change. The first part of this chapter considers the literature on managing change, its concepts, theories and models. The second part is concerned with the literature on organisational behaviour, its concepts, theories, and models pertaining to employees' motivation and commitment towards the organisation, particularly the influence each has on the effectiveness and performance of the organisation.

The literature review will focus on what can be considered as the more classic work within the management of organisational change. Although there are contemporary debates within the change literature, these are by and large informed and have their basis within the classic work within the management of organisational change literature.

In the context of this longitudinal study and the variables related to the changing nature of the organisation, it was deemed to be the case that the fundamental concepts within the classic literature would facilitate a better map of the changes within the organisation and power plant over the study timeframe (1990 -2002). With this approach in mind, the discussion chapter of the thesis provides an analysis of these theories and models against the experiences of organisational change that have been found from the case presented in this study.

4.2 Managing Change

Organisations depend on and interact with their internal and external environments in order to survive. Research carried out by Trist and Bamforth (1951), Trist and Emery (1965), Katz and Kahn (1978), and Griffin (1987) concluded that organisations are not static, as previously thought, but are dynamic and ever-changing entities. The idea of the organisation as an open system implies that it operates in an environment from which it draws on various inputs such as financial, material and human resources. The organisation processes these inputs to produce outputs in the shape of goods and/or services. The concept of change therefore implies that a situation, person or thing has altered in someway. It also suggests difference, adaptation, innovation and renewal (Cole, 1995). Furthermore, Burnes (2000, p.58) stated that

> *"change management is not a distinct discipline with rigid and clearly defined boundaries. Rather, the theory and practice of change management draws on a number of social science disciplines and traditions".*

Moreover, Burnes stresses the importance of understanding and acknowledging the theoretical foundations on which change management is grounded. These theoretical foundations were made such as Trist and Bamford (1951) who from the Tavistock Institute of Human Relations are credited with undertaking one of the early research studies into organisations as open systems. Their research was carried out within the coal mining industry in an attempt to assess the impact of introducing new technology (coal cutters and mechanical conveyors) on the social and work organisation within the coal mine. The findings from the study led the researchers to conclude that

effective working required the interdependence of technology and social needs. It was not enough to regard the working environment purely as a technological system into which people must be fitted nor was it enough to regard it primarily as a social system. It had to be a combination of the two, resulting in the birth of the *'socio-technical system'* (Cole,1996; Handy,1994; Mullins, 1992; Moorhead and Griffin,1989). Therefore the socio- technical system is concerned with the interactions between both the psychological and social factors, and the needs and demands of people as well as the structural and technical requirements of the organisation.

The three social sciences' school of thoughts that form these foundations are discussed below.

4.2.1 Understanding Change

The theory and practice of managing change is built on the following schools of thought:

- The Individual Perspective School
- The Group Dynamics School
- The Open systems School

The Individual Perspective School

There are two distinct schools of thought relating to this perspective: the behaviourists and the Gestalt-Field psychologists. The behaviourists' theory is based on the assumption that the behaviour exhibited by an individual is the result of the external stimuli to which they are exposed. The Psychologists theory is based on an

assumption that the behaviour exhibited by an individual is a function of both the external stimuli and interpretation an individual perceives of the stimuli. Change, under this perspective, is achieved by modifying the external stimuli and the interpretation an individual perceives the stimuli to be. The Human Relations movement, through the work of Argyrist (1957), McGregor (1960) and Herzberg (1966) stressed the need for both forms of stimuli in order to influence human behaviour. The Human Relations movement whilst concentrating on the individual (social man) do acknowledge the importance of social groups in organisations. The group dynamics school of thought supports this point of view.

The Group Dynamics School

This perspective is based on the theory that organisational change occurs through teams or work groups rather than individuals. The main focus of change at the group level must concentrate on influencing and changing the group's rules or standards – written or unwritten (norms), the performance targets and job descriptions within the group (roles) and the beliefs and ideas held by the group of what is right or wrong (values). The concept of groups within organisations is one point of view but there is a third concept, which deals not with the individual or group, but with the organisation itself (Lewin, 1947; Allport, 1948).

The Open Systems School

The Open Systems School views the organisation as being constructed of a number of sub-systems, which are interconnected. The concept of change within this school of thought is based on the premise that any change within one sub-system, has an equal or opposite effect on the others. Criticising this school of thought Butler (1985)

argued that *"Social systems are extremely dynamic and complex entities that often defy descriptions and analysis. Therefore, one can easily get lost, in attempting to sort out all the cause and effect relationships"* (Butler, 1985, p.345). Furthermore, Senior (1997, p.308) supports Butler's point of view by arguing that:

> *"change is about nothing if it is not about persistence. This means persisting in the face of an ultra-unstable environment; persisting in the face of plans which are built for stability rather than change; persisting in the face of plans that are out of date as soon as they are formed. It means applying the same principles to people as are applied to 'things' that is, the knowledge that nothing is perfect".*

It can be argued that the above review of the three schools of thought has raised two key points. Firstly, each school of thought focuses on different aspects of and levels within the organisation. Therefore each has implications on the type of change employed and how best it should be managed within the organisation. Secondly, taken individually, each school professes to be the only real and successful approach to managing change. However, rather than being in competition with each other, they are in fact complimentary theories of change. If one accepts that the concept of change implies that a situation, person or process has altered in someway (Cole, 1995), then change programmes and/or initiatives require the co-operation and agreement of the individuals and groups who make up the population of the organisation or workgroup. Therefore if change is to be successful it needs to be 'internalised' by those it affects and who need to implement it (Johnson and Scholes, 1999). The different types and

approaches to managing change within organisations are reviewed in the following section.

4.2.2 Approaches to Managing Change

The literature on managing change has emphasised three types of change (Burnes, 2000; Senior, 1997; Buchan and Storey, 1997; Dawson, 1994; Dunphy and Stace, 1993).

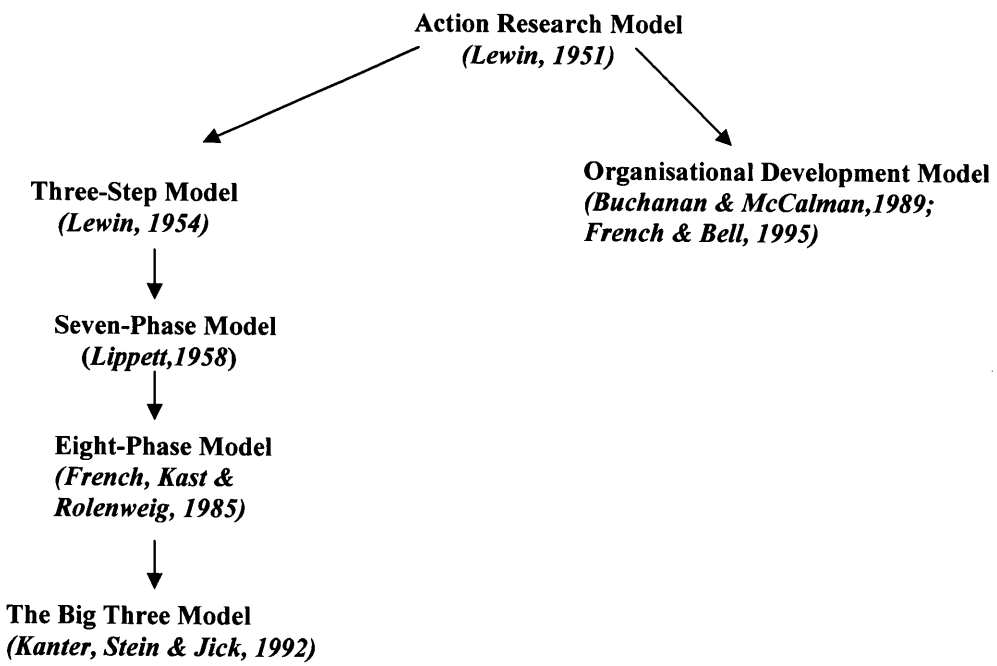
- Planned Change – where the organisation initiates changes proactively.
- Emergent Change – where the organisation is forced to respond at short notice to external or internal influences.
- Situational or Contingency Change – where the organisation is viewed as a political and cultural system.

Planned Change

Planned change orientates around the concept of improving the human side of the organisation through groups and teams. Therefore the main theme underpinning planned change is a strong humanist and democratic orientation (Coram and Burnes, 2001). Lewin recognised that one of the barriers to the action research process was one of commitment from both senior management and employees who experienced the change. The traditional approach to planned change is based on the work of Lewin (1951) who proposed a number of change models beginning with his Action Research model. This model is a data-based, problem solving method that replicates the steps involved in the scientific method of enquiry. French and Bell (1995) describe action research as a method for learning and doing, meaning learning about the dynamics of organisational change, and doing or implementing change efforts. Lewin (1947) argued that *"the research needed for social practice can best be characterised as*

research for social management or social engineering. It is a type of action – research, a comparative search on the conditions and effects of various forms of social action, and research leading to social action. This by no means implies that the research need is in any respect less scientific or 'lower' than what would be required for pure science in the field of social events. I am inclined to hold that the opposite to be true" (Lewin, 1947, pp 150-151). Figure 4.1 below illustrates the attempts by various writers to develop Lewin's model.

Figure 4.1 Planned Change Models



Source: Hatch (1997), Organization Theory Modern Symbolic and Postmodern Perspectives, pp.358 – 358, Oxford University Press, Oxford, U.K.

The action research model, as developed by Lewin was based on the premise that a systematic analysis of the issues relating to an organizational problem, by a collaborative team who learn by the process of solving the problem (Bennett, 1983). Shani and Bushe (1987) commenting on this joint enquiry into the problem by

scientists and company employees, stated that *"it is the development of high quality relations between action researchers and organisational members that creates access to important information that otherwise might not be available to outsiders"* (Shani and Bushe, 1987, p 8). However, this setback did not deter Lewin from seeking to improve the process associated with planned change (Clark, 1972).

Hence the development and introduction of the Three – Step Model of planned change. In the development of this model Lewin stated that *"a change towards a higher level of group performance is frequently short lived; after a 'shot in the arm', group life soon returns to the previous level. This indicates that it does not suffice to define the objective of the planned change in group performance as the reaching of a different level. Permanency at the new level, or permanency for a desired period, should be included in the objective. A successful change includes therefore three aspects: unfreezing (if necessary) the present level, moving to the new level and refreezing group life at the new level. Since any level is determined by a force field, permanency implies that the new force field is made relatively secure against change"* (Lewin, 1947, pp.228-229 as cited in Burnes, 2000, p.270).

Three – Step Model

- *Unfreezing,* is the process by which individuals become aware of the need for change. The key factor in unfreezing is making individuals knowledgeable about the importance of the change and how their jobs will be affected by it. Change in this context could mean the installation of new equipment, the restructuring of part or the whole organisation, or the introduction of a new performance appraisal system.

- *Movement,* involves explaining what new behaviours are required (actions, attitudes and values) as well as gaining the participation of the individuals or groups concerned in working through the practicalities of the change. Furthermore, this stage represents the opportunity to change not only behaviours but the establishment of new policies, practices and structures which will help to support and reinforce the desired actions, attitudes and values within the organisation.
- *Refreezing,* is the process by which the new behaviours become relatively permanent within the individual or group in an attempt to be resistant to further change. Refreezing is necessary to ensure that the old behaviours are not reasserted to the detriment of the new behaviours which could be forgotten about or ignored.

Whilst providing a good framework for understanding the process of planned change Lewin's Three –Step model is vulnerable because it is a unidirectional model which moves from an existing stable environment to a new stable environment. Furthermore it fails to recognise the effect on the organisation, and on the individual or group(s) going through the change process. Moreover, it can create cultures and structures which are not conducive to continuous change within a dynamic and complex environment (Dawson, 1994).

Over the years there have been several attempts to develop and strengthen Lewin's model (Lippett, 1958; French, Kist and Rouenweig, 1958; Bullock and Batten, 1985; Cummings and Huse, 1989: French and Bell, 1995; Kanter, Stein and Jick, 1992). These are some of the writers and theorists who have built on the Three-Step model in

an attempt to reduce or negate its perceived weaknesses. Cummings and Huse (1989, p.51) deduced that *"the concept of planned change supposes that an organisation exists in different stages at different times and that planned movement can occur from one state to another"*. Therefore, to understand planned change in an organisation it is not sufficient to understand the process of change but there has to be an understanding and appreciation of the effects change has on the organisation (Burnes, 2000). According to Burnes (2000) there are three models which indicate and review the processes which need to be in place at the individual, group and organisational level for planned change to be effective.

- The Four Phase Model.
- The Big Three Model.
- Organisational Development Model.

Four Phase Model.

Bullock and Batten (1985) developed a four-phase model based on the phases of change and processes of change. This model was developed from a synthesis of 30 planned change models.

Phase 1 – Exploration. Identifying the need for change and appointing a change agent.

Phase 2 – Planning (unfreezing). Collecting information to define and diagnose the problem, establishing the necessary actions to correct the problem and gaining commitment from senior management to support the changes.

Phase 3 - Action (unfreezing and moving). Establishing the transition arrangements to move to the future state, gaining commitment from those affected by the change, evaluating the implementation of the change and making adjustments as necessary.

Phase 4 - Integration (freezing). Consolidation of the changes to ensure they become established.

Cumming and Huse (1989) agreed that the four-phase model, as proposed by Bullock and Batten, had broad applicability to most change situations. The model incorporates key aspects of the other planned change models, as well as, dispelling any criticism between the method and phases of change (Burnes 2000, pp.272 – 273).

The Big Three Model

Lewin's three step model of change was described by Kanter *etal* (1992) as the *'organisation as ice cube'* view of change due to it being a *'quaintly linear and static conception'* that simplifies a complex process into a formula for a child. Their contention being that change is both *'ubiquitous and multidirectional'*. Hence Lewin's model does not reflect the level of complexity needed to address the phenomenon of change (Hart, 1997). Kanter and her colleagues contended that Lewin's model indicates that organisations change in one direction at a time. Their contention being that change is multidirectional and continuous. The Big Three model is based on the combination and application of a variety of key concepts and theories as developed by organizational theorists such as Pfeffer (1978), Katz and Khan (1966), Adler (1991), Schein (1992), and Yanknow (1993). Therefore, the Big Three model builds on the

models of environmental relations, social structures, organisational culture, and physical structure.

Moreover, the focus of change within this model is on the organisation at a strategic level. This is in contrast to Lewin's three step model which focuses more on the operational level (individual and/or group) within the organisation. Commenting on the Big Three model, Hatch (1997) stated that *"While Kanter and her colleagues present a theory of change that is considerably more complex than Lewin's, it is not clear that theirs is as dynamic as they claim. For one thing, they present only a framework for combining other theories and a framework is itself a level one system (non-dynamic). Another reason may be that these researchers focus on broad patterns of organisational change, rather than one change at the level of ordinary, everyday life in organisations"* (Hatch, 1997, p.358).

Organisational Development Model

Organisational Development (OD) has its roots in the Human Relations perspective which stresses the importance of managing through subordinate participation and power sharing rather than through the hierarchical imposition of authority (collaborative management). OD is a planned process of change, involving performance improvement, in which an organisation seeks to align closer to the environments and markets in which it operates. OD also involves developing organisations in terms of culture, values, people, structures and resources. French and Bell (1995) argued that the focus of the four phase model (Bullock and Batten, 1985) and the three step model (Lewin, 1954), is change at the individual and group level. French and Bell (1995) argued that *"the context for the application of OD approaches*

has changed to an increasingly more turbulent environment. Second generation OD includes interest in organisational transformation, culture, learning as well as, teams and their various configurations, total quality management, visioning and getting the whole system in the room" (French and Bell, 1995, p.61).

Criticism of the Planned Change Model

Although the model offers a rational framework in which to analyse and implement change it makes assumptions that:

- The workgroup undergoing the changes are receptive.
- The role of the change agent is all-powerful and knowing.
- There is no impact or change on other groups in the organization.

The changes considered by the planned change models tend to be isolated (occurring in a stable environment) and incremental, rather than transformational in nature. Other important aspects not defined in these planned change models is any reference to

1. the time needed to carry out the change.
2. the importance of the organisational culture and prevailing climate.
3. the role and style of leadership,
4. the external environment – especially what the competition is doing and
5. how the organisation knows what is going on in the external environment.

Buchanan and Storey (1997) argued that, in their opinion, the main criticism of the advocates of planned change is *"their attempt to impose order and a linear sequence*

to processes that are in reality messy and untidy, and which unfold in an iterative fashion with much backtracking and omission" (Buchanan and Storey, 1997, p.127). Another criticism levelled at the planned approach to change is its assumption that one approach to change is applicable to all situations and environments. Burnes (2000) argued that *"planned change was never intended to be applicable to all change situations and it was certainly never meant to be used in situations where rapid, coercive and/or wholesale change was required"* (Burnes, 2000, p.277).

Emergent Change

The emergent approach to change grew out of research by Pettigrew (1985), Wilson (1992), Dawson (1994) and Kotter (1996), each having a belief that change was a continuous process due to the dynamism and uncertainty within the business environment. This concept was contrary to the view held by the advocates of the planned approach who viewed the change process as a series of linear events within a set timeframe. The emergent approach therefore views change as a process that emerges through the interaction of organisational variables such as context, political processes and consultation. Stickland (1998, p.93) stated that

> *"within any organisation at a given point in time there are a number of continual shifts and changes playing out at various levels. These are not planned changes with a defined beginning and end, but rather reflect the natural dynamics which take place internally".*

Supporters of the emergent approach to change do not advocate a process for analysing and implementing change (as per the planned approach). They do, however,

stress that there are four factors within the organisation that will either promote or obstruct change within the organisation. These factors are culture, structure, learning ability and managerial behaviour, as discussed below.

Culture

The culture of an organisation includes patterns of behaviour, values, attitudes, beliefs, norms, sentiments and technology. There are a number of ways in which an organisation's culture can be classified. These classifications have been proposed over the years by a number of researchers (Hall, 1995; Pheysey, 1993; Handy, 1993; Scholz, 1987; Quinn and McGrath, 1985; Deal and Kennedy, 1982; Harrison, 1972). The earliest model of organisational culture was developed by Harrison (1972), who proposed four main categories of organisational culture – Power, Role, Task, and Person. Whilst the other researchers such as Deal and Kennedy (1982) and Quinn and McGrath (1985) developed their own set of theories of organisational culture and the way in which it affects how management makes decisions and form strategies. Table 4.1 below outlines the categories of organisational culture as discussed above.

Table 4.1 Categories of Organisational Culture

Harrison (1972)	Deal and Kennedy (1982)	Quinn and McGrath (1985)
Power	Macho	Rational
Role	Work Hard/Play Hard	Adhocracy
Task	Company	Consensual
Person	Process	Hierarchical

Source: Author generated from review of literature.

Handy (1993), drawing on Harrison's (1972) work, referred to organisational culture as atmosphere, ways of doing things, levels of energy and levels of individual freedom, the sets of values, norms and beliefs reflected in different structures and systems (Handy, 1993, p.180). On the basis of this empirical work, Handy (1993) proposed four types of organisational cultures, each of which is described below:

Power – This culture type is based on trust and good personal communication. The power culture is dynamic in that change can take place quickly but is dependant on a small number of key powerful individuals. The focus in this culture is on the success of the organisation but members of staff tend to be expendable in the achievement of the organisational goals.

Role – This culture type tends to be bureaucratic in nature, requiring logical, co-ordinated and rational processes with particular emphasis on rules and procedures. Control in this type of culture lies with a small number of employees having a high degree of authority. Organisations that adopt this type of culture operate within a stable and predictable environment delivering products and services which have a long life span. Change within these organisations tends to be gradual or minor in nature.

Task – In this type of culture reliance is placed in the expertise of employees. Organisations adopting this culture tend to be flexible, with individual employees having autonomy, enabling a fast response to change within the external or internal environment.

Person – This culture relies on collective decision making, most likely associated with partnerships. Compromise is central to this culture, where individuals tend to work within their own sphere of specialism without reference to other employees. The type of organisations/businesses adopting this culture will often be - legal firms, doctors, and small consultancy firms.

The cultures identified by Handy (1993), Quinn and McGrath (1985), Deal and Kennedy (1982), Harrison (1972),as discussed above, are referred to by Luthans (1998) as the dominant cultures within a typical organisation. However, Chatman and Bearsade (1995) identified what they called 'subcultures' within an organisation. They described these subcultures as a set of values shared by a minority of employees. These shared values being borne out of shared experiences and/or problems encountered by the group. Moreover, subcultures, in general, are formed to aid employees deal with problems they encounter on a day-to-day basis. Subcultures have the potential to undermine and weaken the dominant culture and/or objectives of the organisation. Research carried out by Preston et al (1996) within the National Health Service (NHS) - identified that doctors, nurses, and radiographers had made great efforts to retain their own professional identities (subcultures). These sub - cultures were developed within each profession despite each being dependant on each other in the delivery of effective patient care.

Structure

Pugh (1969) considered that organisational structures were critical in determining and defining where the power and authority lies within the organisation the shape and the number of layers of people in each span of control. Furthermore, structures help

identify the amount of specialisation within the organisation, whilst determining the type of procedures (standardisation), customs and rules (traditionalism) as well as how formal the organisation is in respect to procedures, instructions and communications. In an effort to measure aspects of the above dimensions, Pugh constructed sixteen scales from data collected in fifty-two organisations operating within both private and public sectors. Analysis of the empirical data defined four underlying dimensions of organisation structure each is described below:

- Structure of Activities – how personal behaviour within the organisation is defined by specialisation, standardisation and formalisation.

- Concentration of Authority – where within the organisation the decision concentrated top, middle, bottom.

- Line Control of Workflow – the degree of flexibility line staff have over output rather than written procedures (empowerment).

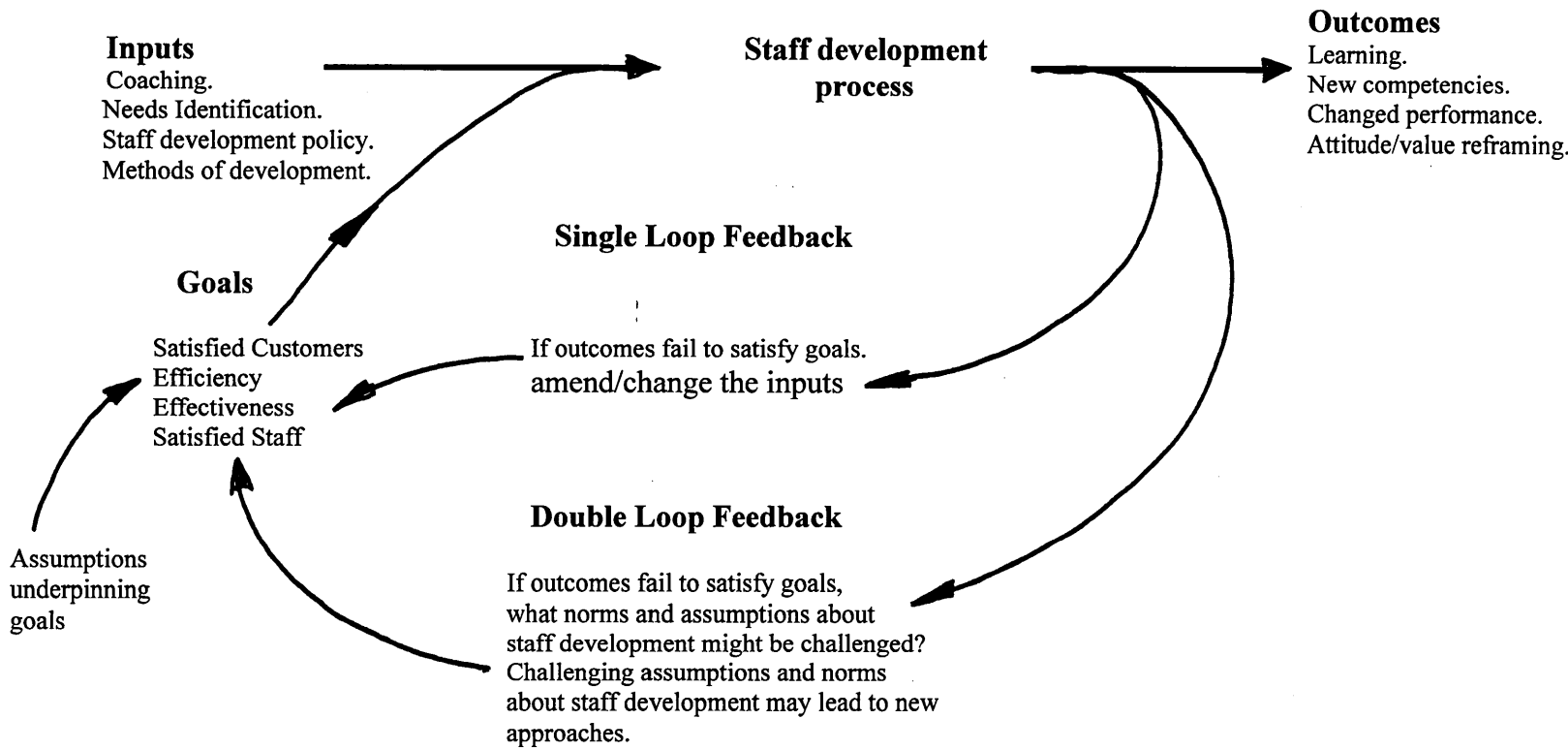
- Relative Size of Support Component – the number of indirect personnel engaged in auxiliary tasks in support of the main core business

Therefore, organisational structure defines tasks and responsibilities, work roles, relationships, channels of communication and a framework of order and command to enable the organisation to achieve its goals, vision and objectives (Mullins, 2002; Senior, 1997).

Learning Ability

Argyris (1978) is credited with leading modern academic thinking and theorising about the 'learning organisation'. He made a clear distinction between first-order (single loop) and second order (double loop) learning, both of which are described below and Figure 4.2 outlines the process:

Figure 4.2 Single and Double Loop Learning Process



Source: Thornhill (2000), Managing Change A Human resources Approach, page 174, Pearson Education, Harlow, England.

Single loop learning involves improving the organisations capacity to achieve known objectives. This aspect of organisational learning is referred to as 'individual learning' (Senior, 1997) where an individual learns from past and present experiences but fails to impart the learnings to colleagues within the organisation.

Double loop learning re-evaluates the nature of the organisations objectives, values, and beliefs. This process of learning involves challenging the organisation's culture or simply put 'the way we do things around here' (Thornhill, 2000, p 174).

Managerial Behaviour (Leadership)

More than any other field within organisational behaviour there is a considerable body of knowledge on leadership. Leadership can be defined in simple terms as *"a process in which one individual, or sometimes a small group of individuals, influences the efforts of others towards the achievement of goals in a given set of circumstances"* (Cole, 1995, p.193). Therefore leadership can be described as a dynamic form of behaviour with a number of variables which have an impact on the leadership relationship. The behaviour of managers and their leadership style will have an influence on the motivation and level of performance of the employees. This places a heavy responsibility on managers and on the styles and systems adopted within the organisation. McGregor (1987) identified four major variables which influence leadership:

- The characteristics of the leader.

- The attitude, needs and other characteristics of the followers.

- The nature of the organisation, such as its purpose, its structure and the tasks to be performed.

- The social economic and political environment.

Based on their research into the key influences of leadership behaviour on effective and high performing teams, Sheard and Kakabadse (2004), argued that

> *"the future of leadership may be considered to be one that does not promote one man to the role of great leader, more likely is a model of leadership that promotes the concept of a 'leadership team' who together are able to adapt to the changing context in which we must operate"* (Sheard and Kakabadse, 2004, p.37).

Furthermore, they argued that the new model will place greater emphasis on the development of people skills, and the ability to conceptualise and then communicate the emerging vision.

Criticism of Emergent Change Model

A criticism levelled at the emergent approach in managing change is its reliance and emphasis placed on the political and cultural aspects of change. Hendry (1996, p.621) argued that the *"management of change has become over-focused on the political aspects of change"*. Furthermore, Collins (1998, p.100), voicing his own concerns, and those of other researchers argued that "in reacting *to the problem and critiques of the planned approach managers and practitioners have swung from a dependence on*

under-socialised models and explanations of change and instead have become committed to the arguments of, what might be called, over-socialised models of change".

Moreover, the emergent approach to change is based on the assumption that organisations operate in a dynamic and turbulent environment, which leads to continuous transformation. Acceptance of this assumption raises doubts about the emergent approaches' applicability in environments that are not turbulent and the change process required is incremental and not transformational.

Situational or Contingency Change

The review of change management models and concepts carried out within this thesis has taken cognisance of organisational culture, external and internal environments, the role of leadership, structures, and strategies. However, it can be argued that one important piece of the change management jigsaw is missing, that of timeframe. Pettigrew et al (2001), commenting on the transformation of change processes and theories stated: *"several writers (Greenwood and Hinings, 1996; Orlikowski, 1996; Van de Ven, Angle and Poole, 1989) have acknowledged that context and action are inseparable, that theories of change ought to explain continuity, and that time must be an essential part of investigations of change if processes are to be uncovered"* (Pettigrew et al, 2001, p.697).

Grundy (1993) had a similar viewpoint regarding timeframes within organisational change programmes. His three variables model was developed in an attempt to create a practical guide to help managers reflect on the severity of change. Grundy accepted that his model of change was based on generalisations rather than on any empirical

research or case studies. The three variables that Grundy outlined are: smooth incremental; bumpy incremental; and discontinuous change.

The first variable, smooth incremental change evolves slowly in a systematic and predictable way. Although this type of change does represent a rate of change it does so at a constant rate over time.

The second type, bumpy incremental change is characterised by periods of relative tranquillity punctuated by the pace of change, often perceived as overload. The periods of overloads can be associated with company reorganisation triggered by external and/or internal environmental factors.

The third type of change, discontinuous change is characterised by rapid shifts in organisational culture, strategy, or structure caused by major changes within the external environment. The privatisation of the UK electricity industry would be a good example of discontinuous change in recent times, as already described in chapters 2 & 3 of this thesis.

Dunphy and Stace (1993) argued that, *"turbulent times demand different responses in varied circumstances. So managers and consultants need a model of change that is essentially a 'situational' or 'contingency' model, one that indicates how to vary change strategies to achieve 'optimum fit' with the changing environment"* (Dunphy and Stace, 1993, p.905). Moreover, they argued that there needed to be a model of change which reflected on and recognised the differing and dynamic circumstances organisations operated within.

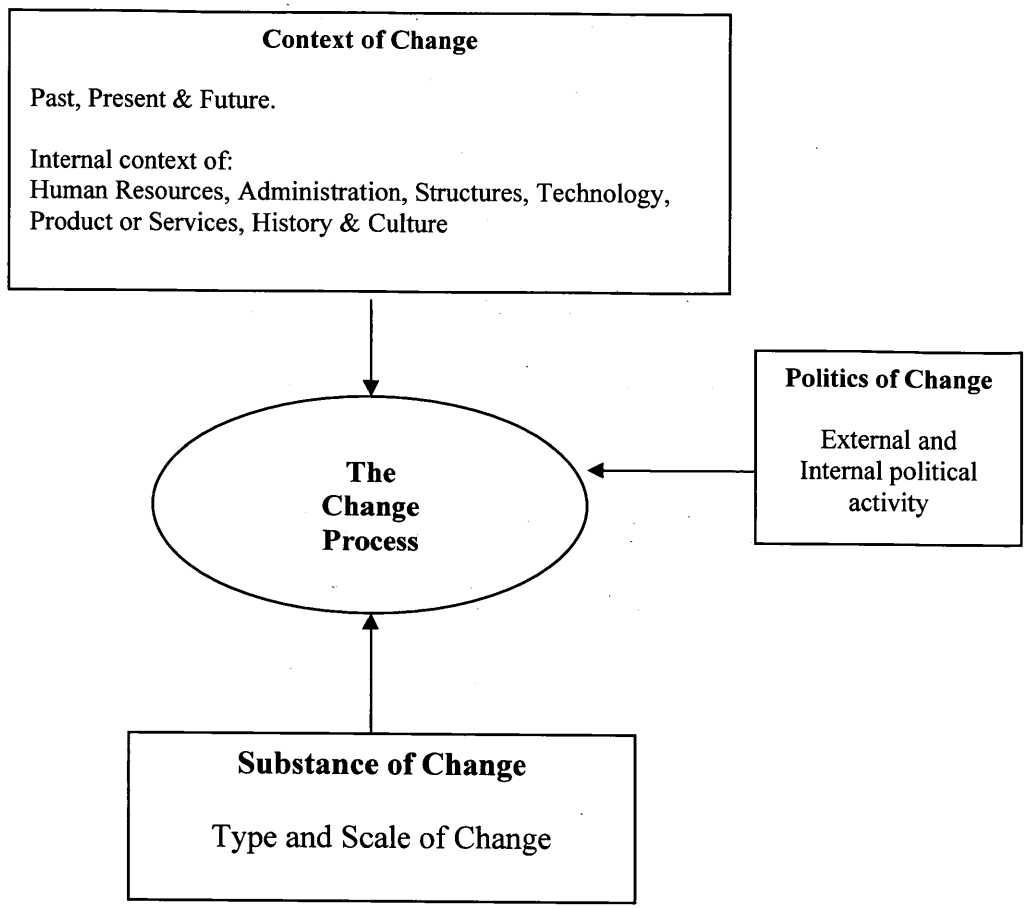
Pettigrew (1987) commenting on the type of research questions which would need to be asked from a contextual perspective, suggested: *"they would first of all involve questions about the content, context, and process of change, together with the inter connections between these three broad analytical categories"* (Pettigrew, 1987, p. 657). Pettigrew seemed to be arguing for more contextual and temporal analysis within the organisational change management arena, which is free from the inherent biases attributed to the social sciences school of thought.

Dawson (1994) reflecting on Pettigrew's argument, suggested that the temporal aspects of change can be used to unravel the complexities of the organisational transition process into more manageable pieces. Furthermore, Dawson advocated the use of a general model consisting of three general timeframes of change that is, the substance, context and politics of change. Dawson argued that:

> *"this alternative model is intended to convey the interconnectedness and complexity of dynamic processes of change through combining a threefold classification of factors shaping the process of organisational transformation with a clear representation of the temporal nature of change"* (Dawson, 1994, p.45; Nelson & Dowling, 1998, p.487).

Figure 4.3 presents a diagrammatical representation of the three general timeframes.

Figure 4.3 Determinants of Organisational Change



Source: Nelson and Dowling, 1998, page 487 based on Dawson, 1994 page 34.

4.2.3 Summary of Part 1

The review of the change management literature identified three main approaches to managing change – planned, emergent and situational or contingency approaches. *Planned change* assumes that organisations anticipate change and prepare for it. The planned approach to change is grounded in the theory of Lewin's (1951) model of unfreezing – moving – refreezing, which is based on the premise that change takes place in a stable environment and is incremental in nature, and that one approach is applicable to all situations and environments. However, subsequent research has

shown the planned approach to change to be unsuitable to situations that require large-scale change, and where political and power influences are prevalent (Burnes, 2000; Buchan and Storey, 1997; Hendry, 1996; French and Bell, 1995).

The *emergent change* assumes that organisations are open and fluid systems operating in an unpredictable and turbulent environment over which they have little or no control. Supporters of the emergent approach view change as being driven from the bottom up rather than from the top down. They also view change as a process of learning and not just a method of changing the organisations' structures and practices (Dawson, 1994; Mabey and White, 1993; Wilson, 1992). Therefore, emergent change is not applicable to organisations operating in environments that require incremental change programmes. It has apparent advantages over the planned approach. However, there are concerns over its coherence, validity and general applicability (Franklin, 1997; Dunphy and Stance, 1992; Edwards, 1983).

The *situational or contingency change* assumes that organisations initiate and respond to change depending on the context in which it operates. This approach to change also assumes that organisations operating in unpredictable and uncertain environments require varying change approaches to achieve 'optimum fit' with the changing environment (Dunphy and Stace, 1993). Matching approaches to change with environmental conditions and organisational constraints enable organisations to exercise some choice and influence over their environment and its constraints. Organisations do have the opportunity to make choices about what to change, how to change and when to change (Burnes, 2000; Nelson and Dowling, 1998; Senior, 1997; Dawson, 1994 & 1996; Pettigrew, 1987).

PART 2

4.3 Employee Motivation and Commitment

This second part of the chapter reviews the literature pertaining to employee motivation and commitment. Various writers describe motivation in many ways. However, each of the definitions are concerned with identifying the triggers for behaviour as well as understanding how and why people behave in certain ways in a set of given circumstances (Campbell and Pritchard, 1976; Kolb et al, 1979).

Motivation theories explain why people at work behave in the way they do in terms of their efforts and the direction they take. According to Armstrong (1997) people are motivated when they find and engage in activities which help them achieve their goals. Also, people can be motivated by the organisation through processes and procedures such as rewards (pay), promotion and positive feedback.
There are three accepted theoretical perspectives on motivation as it influences and impacts on work performance (see Table 4.2).

- The content theories, which focus on the *what* of motivation.

- The process theories, which focus on the *how* of motivation.

- The reinforcement theories which focus on the *ways* in which behaviour is learned (Luthans, 1998).

Table 4.2 Motivational Theories and Models

Content Theories	Process Theories	Reinforcement Theories
Hierarchy of Needs	Expectancy Theory	Classical Conditioning
ERG Theory	Equity Theory	Operant Conditioning
Two – Factor Theory	Attribution Theory	Law and effect
← WORK MOTIVATION →		

Source: adapted from Luthans, (1998, page 169), Organizational Behaviour, 8th Ed, McGraw and Hill, Boston, Massachusetts, USA.

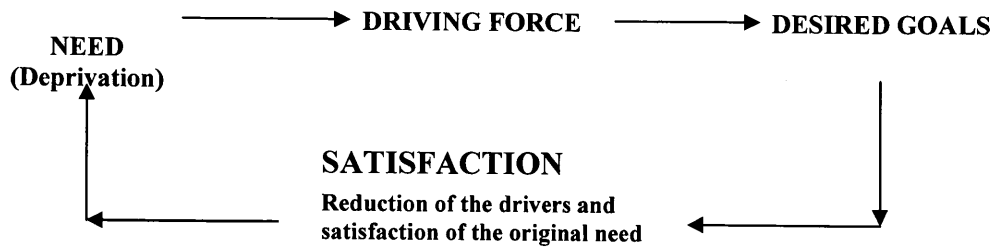
For the purpose of this empirical study only the content and process theories will be reviewed in detail. The reinforcement theories are an important addition to the knowledge of motivation theory, and significantly add to the human resources management and leadership approaches to organisational development and employee motivation. Cole (1995) stated that *"reinforcement theory is not basically concerned with what motivates behaviour, or how, and is not strictly a theory of motivation, it is more concerned with control of behaviour"* (Cole, 1995, p.134). Hence the author has decided not to review the reinforcement theories in detail but recognises their importance when analysing and discussing the findings of this study in later chapters.

4.3.1 Content Theories

Content theories deal mainly with the understanding of the factors within humans that cause them to behave in a particular way. They attempt to answer such questions as; what needs do people try to satisfy? And what impels them to action? Individuals have inner needs that they are motivated to reduce or fulfil. That is, they will act or

behave in ways that will lead to the satisfying of these needs. Figure 4.4 below illustrates the basic motivational model.

Figure 4.4 Content Theories Model of Motivation.



Source: adapted from Mullins (2002, page 418), Management and Organisational Behaviour, 6th Ed, Financial Times, Prentice Hall.

Content theories owe much to the research by Maslow (1943) and his five level model Hierarchy of Needs. Fundamental to this theory is the fact that employees start at the bottom of the pyramid (psychological needs), only when they have satisfied their basic needs do they begin to move up through the remaining four steps of the pyramid to the self actualisation stage. According to Maslow, once a need has been fulfilled it no longer acts as motivator but it is possible that employees have a desire to progress to the next level of the pyramid before their base needs have been completely satisfied or fulfilled. Davis and Shackleton (1975), commenting on Maslow's hierarchy of needs theory, point out that *"when Maslow's formulations have been tested, the empirical results have not been clearly supportive. The question of whether physiological, safety, social, ego and self actualisation needs are separate and distinct is in some doubt. Other studies show that higher level needs may be related to job satisfaction even when lower level needs are not gratified, which is contrary to*

Maslow's postulations. Nevertheless, Maslow's work has greatly influenced the theories and research of others" (Davis and Shackleston, 1975, p.99).

Herzberg (1959) was one such researcher who was influenced by Maslow, leading him to carry out his own research into the motivational factors that affect employees engaged in their daily working routines. He concluded that job satisfiers (motivators) related to the content of the job and that job dissatifiers (hygiene factors) were related to job context. The motivators and hygiene factors are better known as Herzberg's *two-factor theory of motivation* (Luthans, 1998). The two main criticisms made of the two-factor model are:

The methodology applied during the original studies, which was the 'critical incident method'(Vroom, 1964; House and Wigdor, 1967; Davis and Shackleton, 1975).

Its perceived limited application to manual or other workers (Goldthorpe, 1969; Blackburn and Mann, 1979; Alder and Graham, 1991; Mullins,2002).

Schermerhorn (2004) stated that: *"Herzberg's theory, just like the other content theories, fails to account for individual differences, to link motivation and needs to both satisfaction and performance, or to consider cultural and professional differences"* (Schermerhorn, 2004, p.96).

Alderfer (1972), based on the empirical evidence on motivational theory, available at the time proposed a model which consisted of three levels of core needs – Existence, Relatedness and Growth (ERG) where:

- Existence needs are concerned with sustaining human existence and survival, and cover physiological and safety needs of a material nature.

- Relatedness needs are concerned with relationships to the social environment, and cover love or belonging, affiliation, and meaningful inter-personal relationships of a safety or esteem nature.

- Growth needs are concerned with the development of potential, and cover self-esteem and self-actualisation (Mullins, 1992, p. 430).

Moreover, Alderfer suggested that needs are more a continuum than hierarchical levels or two factors of prepotency needs. Therefore, unlike Maslow and Herzberg, he does not contend that a lower level need has to be fulfilled before a higher need becomes motivational or that deprivation is the only way to activate a need (Luthans, 1998). Commenting on the validity of Aldefer's model Luthans (1998) stated: *"There has not been a great deal of research on ERG theory. Although there is some evidence to counter the theory's predictive value, most contemporary analysis of work motivation tend to support Alderfer's theory over Maslow's and Herzberg's"* (Luthans, 1998, p.175).

Table 4.3 below maps Maslow's, Herzberg's and Alderfer's theories, showing the interrelatedness of each criteria.

Table 4.3 Content Theories of Motivation

<table>
<tr><th>Maslow's
Hierarchy of Needs</th><th>Alderfer's
ERG theory</th><th>Herzberg's
Two-factor theory</th></tr>
<tr><td>Physiological

Safety</td><td>Existence</td><td rowspan="2">Hygiene Factors</td></tr>
<tr><td>Love</td><td rowspan="2">Relatedness</td></tr>
<tr><td>Esteem

Self - Actualisation</td><td>Growth</td><td>Motivators</td></tr>
</table>

Source: Mullins, (2002, page 430) Management and Organisational Behaviour (6th Ed), Financial Times, Prentice Hall.

The models proposed by Maslow, Alderfer and Herzberg attempt to identify specific content factors that motivate individuals. The content theories, whilst having the ability to be easily understood and readily translated into a working environment there is little or no research available to support these models' theoretical basis and predictability. However, the models have given recognition to motivational factors, which were previously overlooked by the 'Human relations' school of thought (Mullins, 2002; Burnes, 2000).

4.3.2 Process Theories

The process theories put more emphasis on the how and by what goals individuals are motivated. The process theories focus on the thought or cognitive processes of the individual and how they influence the individual's behaviour. The rest of this section will review the following theories:

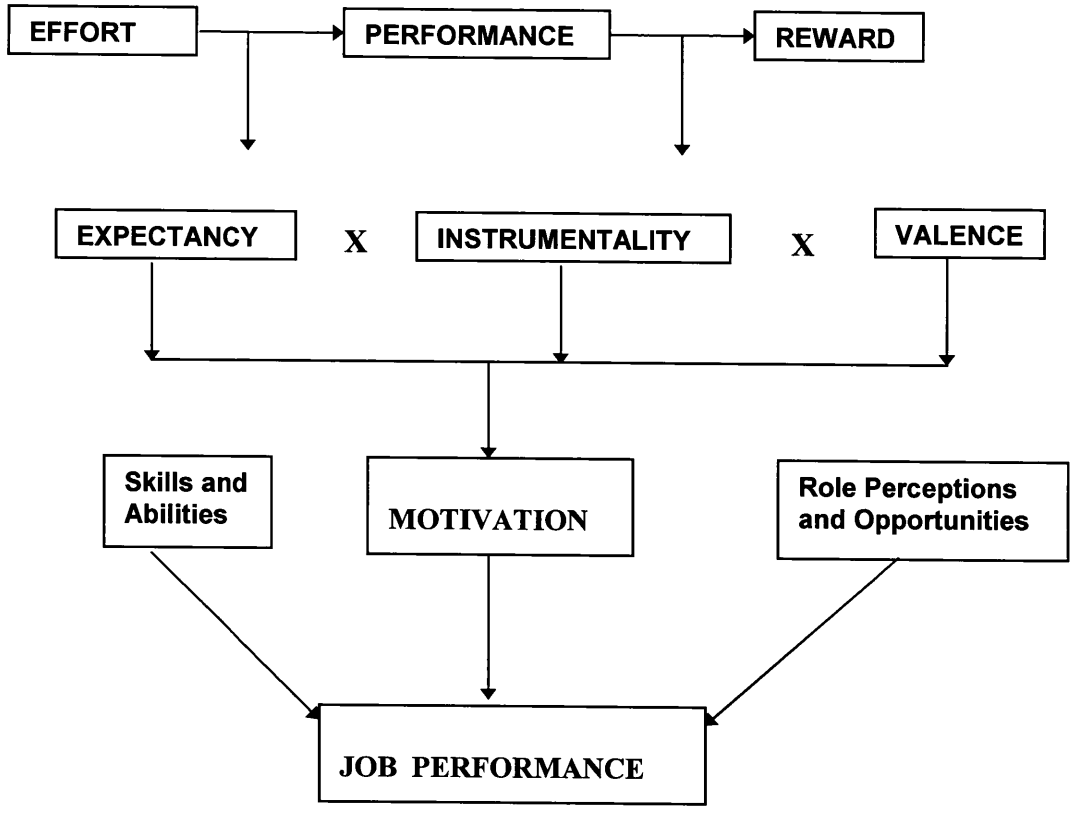
- Expectancy Theory
- Equity Theory
- Attribution Theory

Expectancy Theory

Vroom (1964) proposed his expectancy theory as an alternative to content models, which he felt were inadequate explanations of the complex process of work motivation. The expectancy theory is based on the concepts of Expectancy – the belief that one's effort will affect performance; Instrumentality – the belief that one's performance will be rewarded; and Valence – the perceived value of the expected rewards. According to Schermerhorn (2004, p. 98) *"Victor Vroom's expectancy theory posits that motivation is a result of a rational calculation"*. Where expectancy would be zero if the individual perceived it was impossible to perform well in the job, the value would be 1 if performance levels were achieved. Instrumentality varies from 0 – 1 depending on the individuals' perception of any rewards attached to performance. Valence varies from –1 (very undesirable outcome) to +1 (very desirable outcome) in respect to the perceived value of any rewards. Therefore, the calculation of motivation (M) = Expectancy (E) x Instrumentality (I) x Valence (V). The expectancy theory views motivation as just one determinant of several determinants of job satisfaction. The other factors include the individual's skills and abilities, role perception, and opportunities to influence job performance. Vroom's expectancy model does not directly contribute to the techniques of motivating employees within the work context but it does add value to the understanding and clarification of the relationships between the individual and organisational goals

(Luthans, 1998; Davis and Shackleton, 1975). Figure 4.5 summarises the above components and their role in the expectancy theory.

Figure 4.5 Overview of Expectancy Theory



Source: Greenberg, (1996, page 74), Managing Behaviour in Organizations, Prentice Hall, NJ, USA.

Luthans (1998) argued that *"the expectancy model is designed to help management understand and analyse worker's motivation and identify some of the relevant variables; it does not provide specific solutions to motivational problems"* (Luthans, 1998, p.177).

Studies carried out into the expectancy model and theory by organisational behaviour researchers (Pinder, 1984; Campbell and Pritchard, 1976; Mitchell, 1974; Galbraith and Cummings,1967), conclude that:

- Expectancy and valance are associated with individual effort and performance.
- Individuals will not engage in motivated behaviour unless they value the expected rewards, believe their effort will lead to performance, and that their performance will lead to the desired rewards.
- Individuals are seldom as rational and objective in choosing certain behaviours as the theory implies.
- Marked interaction between valance and instrumentality is evident when support from supervisors and high performance are present.
- Measurement validity of certain parts of the model is questionable due to the complicated design of the model.
- Procedures applied to the investigation of relationships among the variables are not scientific in some cases.

Equity Theory

The equity theory is based on the concept of social comparison. The application of the theory is credited to research carried out by Adam (1965). Adam's basic premise was that individuals make comparisons between themselves and others, by comparing their own effort towards their work (inputs) and the resulting rewards (outcomes) received. Research by Robbins (1993, p. 225) supported the initial findings by Adams on the predictability of individual's behaviour in an inequitable situation. He argued that an individual will make one of six choices:

- Change their inputs – an increase or decrease in attendance, quality of output,and effort;
- Change their outcomes – a change to pay, working conditions, and rcognition with no or little change to inputs;
- Distort perceptions of self – a perception that the individual's effort is much higher than their colleagues;
- Distort perceptions of others – the grass is not greener elsewhere;
- Choose a different referent – convince self that there are others who are less well off, whilst at the same time ignoring those who are better off; and
- Leave the field – resign or request a transfer within the organisation.

(Schermerhorn et al, 2004; Mullins, 2002; Luthens, 1998; Cole, 1995).

The choices outlined above are an indication of the individual's behaviour in response to a perceived inequitable environment. However, a feeling of equity acts as a motivator to the individual to maintain the status quo by continuing to contribute the same level of input to the organisation. Much of the research into the equity theory (Pinder, 1984; Cosier and Dalton, 1983; Thomas and Griffin, 1983; Goodman, 1977) has been focused on one of the ratios' – pay versus the quantity and quality of the individual's output. In general, results have consistently supported the predictions of the equity theory, especially in conditions of underpayment. There was support for "equity norm" where individuals review the inputs and outcomes of themselves and others, and if inequality is perceived, they strive to restore equality. However, field studies found limited support for the "equity norm" theory. Cole (1995) argues *"the expectancy theory is founded on people's perceptions, their sense of equity is applied*

to their subjective view of conditions and not necessarily to the objective situation" (Cole, 1995, p.130).

Attribution Theory

Attribution theory is concerned with the cognitive processes through which individuals interpret the perceived causes of behaviour as being influenced and triggered by certain parts of their environments. The pioneer of attribution theory is Fritz Heider (1958), who believed that behaviour is determined by the cumulative combination of internal and external forces. Heider described the forces as:

- Internal (intrinsic) forces which relate to personal attributes of skill, ability effort and fatigue; and
- External (extrinsic) forces which relate to environmental attributes such as organisational rules, procedures, policies, leadership style, and weather conditions.

The present and/or future behaviour patterns of individuals will be influenced whether they are extrinsically or intrinsically motivated (Schermerhorn et al, 2004; Mullins,2002; Luthans, 1998). Locus of control is another factor within the attribution theory that influences the individual's behaviour within a work context. That is whether they perceive outcomes as controlled intrinsically (under their own control) or extrinsically (at the behest of others). Research by Blau (1993), Anderson et al (1978), Mitchell et al (1975) and Rotter et al (1961) to test the 'locus of control' model found that:

- Internally controlled employees were generally more satisfied with their jobs.

- Internally controlled employees were more satisfied with a participatory management style.

- Internally controlled managers are good performers, and more considerate of subordinates, whilst following a strategic style of executive action.

- Individuals with a high achievement motivation perceive that successful performance is achieved through their own intrinsic forces (ability, skills) rather than by the nature of the task or good luck.

Summary

Process theories are concerned with the actual process of motivation, the 'what' and 'how' of motivation, and include theories such as the expectancy, equity and contribution theories. The *expectancy* theory was developed by Vroom (1964) with amendments and refinements suggested by Porter and Lawler (1967) that identified cognitive variables and their relationship with each other. The expectancy theory is based on the premise that the individual's performance, motivation, and job satisfaction is dependant on how much effort the individual expects to input to the job, and the value (valence) of the anticipated rewards for that level of effort.

The *equity theory* supports the view that individuals are motivated to redress inequities in the workplace. Hence, individuals' motivation, performance, and job satisfaction depend on the comparison they make of their contribution and rewards with those of others in similar situations.

The *attribution theory* is based on the assumption that individuals seek to make sense of their world, attribute colleagues' actions to external or internal causes, and they do so in a logical manner. This theory contributes to the knowledge of cognitive development of work motivation by overcoming some of the limitations of the expectancy and equity theories, in respect to prediction and control of organisational behaviour (Luthans, 1998; Blau, 1993; Anderson et al, 1978).

4.3.3 Employee Commitment

Meyer and Herscovitch (2001, p.475) suggested that commitment, in general, can be defined as *"a force (mindset) that binds an individual to a course of action of relevance to one or more targets"*. They argued that this force or mind-set can take three different approaches: desire (affective commitment); perceived cost (continuance commitment) and obligation (normative commitment). Therefore they explained that

> *"common to these three approaches is the view that commitment is a psychological state that characterises the employee's relationship with the organisation and has implications for the decision to continue or discontinue membership in the organisation"* (Meyer and Allen, 1991, p. 475).

Figure 4.6 below outlines the three approaches. Moreover, the three psychological states represented in Figure 4.6, differ in that;

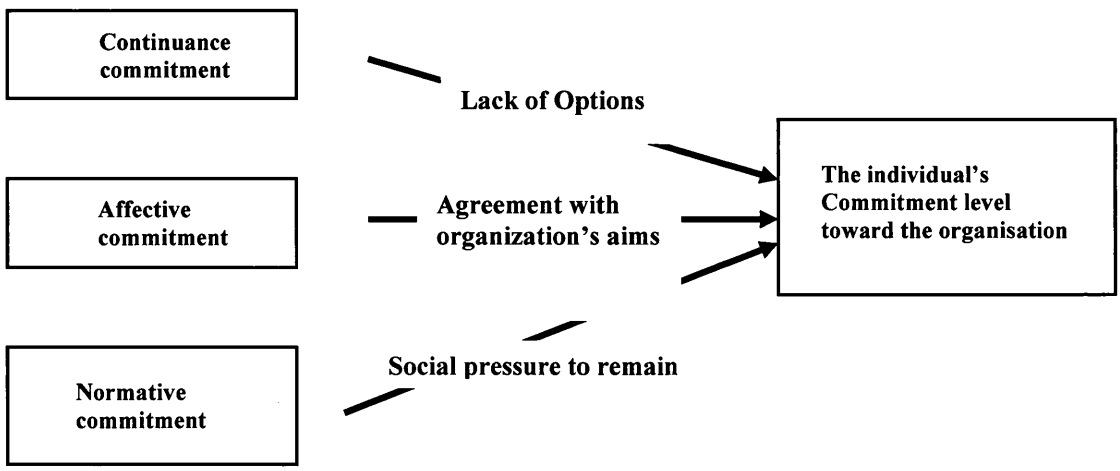
- *Affective commitment* – refers to the individual's emotional attachment to, identification with, and involvement in the organisation. Individuals with a strong affective commitment continue working for the organisation because

their own values and aspirations are in alignment with those of the organisation.

- *Continuance commitment* – refers to the awareness of the costs associated with leaving the organisation. Individuals whose commitment is based on continuance will remain with the organisation because they need to.

- *Normative commitment* – reflects a feeling of obligation to continue employment with the organisation. Individuals with a high level of normative commitment remain with the organisation due to their affiliation towards their colleagues.

Figure 4.6 : Three Approaches to Commitment



Source: Greenberg, (1996, p12) Managing Behaviour in Organisations, Prentice- Hall, New York, USA, (based on research by Meyer & Allen 1991).

Moreover, Meyer and Allen (1991, p. 81) stated that, *"although recognising distinctions in the way commitment has been conceptualised in the literature*

eliminates some of the confusion that existed, it is clear that there remain significant gaps in our understanding of the commitment process".

Research by Shepherd and Mathews (2000), attempted to fill some of these '*significant*' theoretical gaps in employee commitment by establishing if and how commitment can be measured in practice. The method employed was a survey of some 300 HRM managers (32% response rate) within a variety of UK organisations. Shepherd and Mathews (2000, p.557) developed the following approach to the conceptualisation of commitment:

- *Attitudinal Commitment* - characterised by three components namely identification, involvement and loyalty. These translate to an understanding of and strong belief in and acceptance of the organisation's goals, and values and a willingness to exert considerable effort on behalf of the organisation and a strong desire to maintain membership in the organisation.

- *Normative commitment* – defined as the totality of internalised normative pressures to act in a way that meets organisational goals and interests and suggests that individuals exhibit behaviours solely because they believe this is the right and moral way in which to behave.

- *Behavioural commitment* – Incorporates the notion of cognitive dissonance which suggests that the behaviour of the individual causes the development of congruent attitudes. Individuals pursue a reinforcing cycle of congruency as they strive to create consistency within their organisational lives.

- *Calculative commitment*- This involves the number of investments an individual makes as a result of their employment with an organisation and the associated costs of leaving their current organisation, together with their perceived availability of other job alternatives.

Furthermore, Shepherd and Mathews (2000, p.255) concluded that *"despite the variety of formal measuring tools available, organisational monitoring of commitment can be described as adhoc and subjective. The subjective approach adopted by practitioners could inform the approaches of academics just as the structured 'objective' approaches of academics should inform practitioners"*.

Moreover, Stum (2001) conducted several studies over a three year period (1997 – 2000) to assess and better understand the workforce motivators that influence employees' level of commitment. Data were collected from some 60,000 employees from across North America and Canada. Analysis of the data identified two main categories. First the Workforce Commitment Index or independent variables which have the most impact on commitment are:

- *Productivity* - The feeling of being part of an effective team through personal effort and sacrifice by self and colleagues;

- *Pride* - Being proud to work for the organisation as well as recommending the company's goods and services to family and friends; and

- *Retention* - A feeling of job satisfaction and a perception that the reward system is fair, leading to an intention of staying with the organisation for the near future.

The second factor being the Performance Pyramid that can be described as follows:

- *Safety/Security* – The employee first and foremost must feel physically and psychologically safe in the work environment;

- *Rewards* – Extrinsic rewards in compensation and benefits are the next need that must be met in the hierarchy;

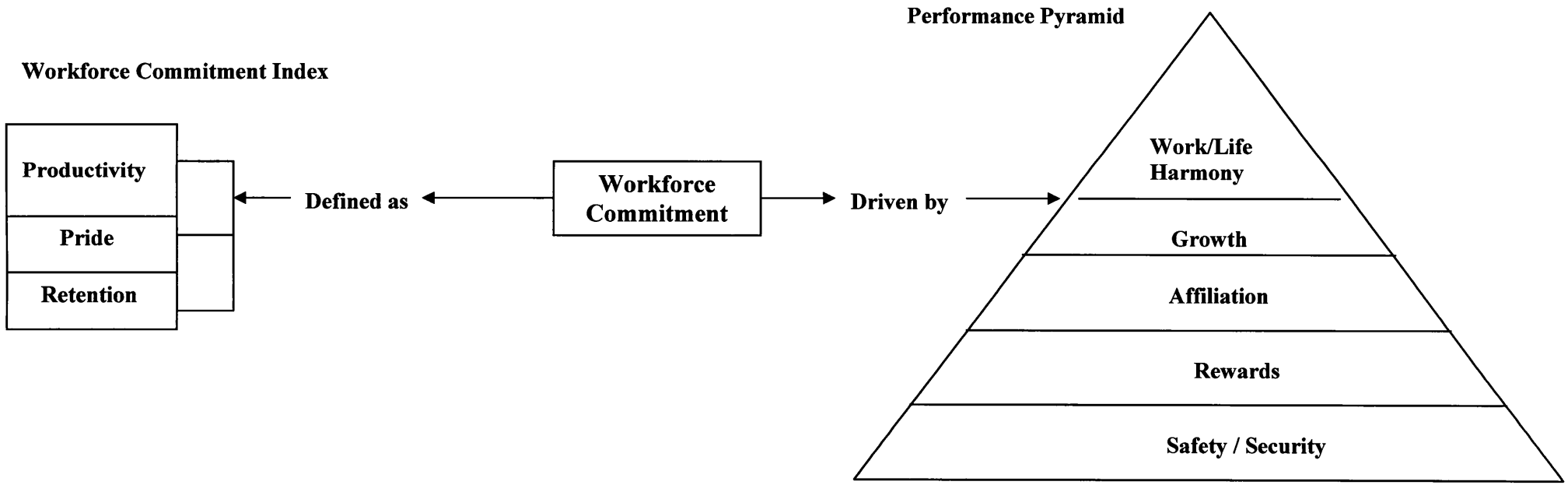
- *Affiliation* – The need for affiliation is intrinsic. A sense of belonging to the work team and/or the larger organisation is sought at this level;

- *Growth* – The need for positive individual and organisational change must be addressed to drive commitment at this level; and

- *Work/Life harmony* – At this level, the drive is to achieve a sense of Fulfilment in balancing work and life responsibilities (Stum, 2001).

Stum's model attempts to link motivational factors (performance pyramid) and workforce commitment factors with the aim of determining the level of commitment shown by the workforce. Figure 4.7 outlines Stum's model.

Figure 4.7 Workforce Commitment Index Model



Source: Stum. David L. (2001), Maslow Revisited : building the employee commitment pyramid, Strategy and Leadership, Vol 29, Number 4, pp 4-9.

4.4 Change, Motivation and Commitment.

If one accepts the following academic and practical points of view that:

- Organisations are open systems operating in a dynamic and ever changing environment, whilst being reliant on the environment for financial, material and human resources in fulfilment of organisational goals and values (Senior, 1997; Cole, 1995; Handy, 1994; Grundy, 1993).
- Change management is not a discipline with clearly defined boundaries but relies on and draws from the theories and practices of the social science disciplines (Burnes, 2000). Moreover, change programmes to be successful require the co-operation and agreement of the individuals and/or groups within the organisation. Therefore if organisational change is to deliver improvements it needs to be internalised by those it affects and those who will implement it (Johnson and Scholes, 1999; Dawson, 1996; Pettigrew, 1987; Conner and Patterson 1982).

- Motivation theory is based on relationships between personal perception and inter-personal behaviour rather than a theory of individual motivation (Luthans, 1998). Furthermore, personal behaviour is influenced and triggered by organisational structures, culture, practices, processes, and leadership style (Schermerhorn, 2004; Luthans, 1998; Cole, 1995; Vroom, 1964).

- Organisational Commitment is strongly linked to organisational performance and staff turnover (Curtis and Wright, 2001), through influencing the

individual's behaviour towards a focal target within the organisation. Moreover one can better understand workplace behaviour if commitment theory and motivation theory were combined instead of being thought of as single entities in their own right (Meyer et al, 2004; Herscovitch et al, 2002; Stum, 2001).

Acceptance of the above theoretical postulations leads to an acceptance that the concepts of change, motivation, and commitment are intrinsically linked. Moreover if organisations are to survive and improve performance within a turbulent ever changing environment, they need to manage change within a wider conceptual and practical model which needs to include all three theoretical concepts.

4.5 Conclusion

The relationship between the organisation and its members is governed by what motivates them to work and the satisfaction they derive from it. The review of the literature has concentrated on the content and process theories because of their relevance to this study. Theories of motivation can be characterised as content, process and reinforcement theories. C*ontent theories* are concerned with the 'what' aspect of motivation and include theories such as Maslow's hierarchy of needs, Aldefer's modified need hierarchy, and Herzberg's two - factor theory. Although, content theories appear to be logical and easy to understand, as well as being readily translated into practice, they do lack support on a theoretical and predictability basis. Due to their simplicity the content theories fail to recognise and understand the

complexity of work motivation (Schermerhorn, 2004; Alder and Graham, 1991; Davis and Shackleton, 1975; Goldthorp, 1969; Vroom, 1964).

Process theories are concerned with the actual process of motivation, the 'what' and 'how' of motivation, and include theories such as the expectancy, equity and contribution theories. The *expectancy* theory was developed by Vroom (1964) with amendments and refinements suggested by Porter and Lawler (1967) that identified cognitive variables and their relationship with each other. The expectancy theory is based on the premise that the individual's performance, motivation, and job satisfaction is dependant on how much effort the individual expects to input to the job, and the value (valence) of the anticipated rewards for that level of effort. The *equity theory* argues that individuals are motivated to redress inequities in the workplace. Hence, individuals' motivation, performance, and job satisfaction depend on the comparison they make of their contribution and rewards with those of others in similar situations. The *attribution theory* is based on the assumption that individuals seek to make sense of their world, attribute colleagues' actions to external or internal causes, and they do so in a logical manner. This theory contributes to the knowledge of cognitive development of work motivation by overcoming some of the limitations of the expectancy and equity theories, in respect to prediction and control of organisational behaviour.

Employee commitment involves the individual's loyalty to the organisation which is determined by a number of personal, organisational and non-organisational factors. Organisational commitment, in general, is thought to have a stronger link with organisational outcomes such as performance, absenteeism, and turnover than does

the concept of job satisfaction. Furthermore, fully committed individuals have a desire to maintain membership in the organisation, and are willing to exert effort on behalf of the organisation (Curtis and Wright, 2001; Strum, 2001). Recent developments within the commitment literature suggest that individuals can become committed to several work related targets (Foci) such as change, teams, and working conditions, in place of, or in addition to, the organisation itself (Herscovitch and Meyer 2002). This is in contrast to the predictability of the process theories of motivation. Meyer et al (2004, p. 991) suggested that *"commitment is one component of motivation and, by integrating theories of commitment and motivation we can gain a better understanding of the two processes themselves and of workplace behaviour"*. Moreover, Conner (1992, p.147) described commitment to change as *"the glue that provides the vital bond between people and change goals*. Conner and Patterson (1982, p.18) argued *"the most prevalent factor contributing to failed change projects is a lack of commitment by the people"*.

Three main themes have emerged from the above literature review of change management and organisational behaviour. They are:

- Organisations do not operate independently of their environments, and as such are influenced by and dependent on the external environment for their success and survival.
- Considering all the theories pertaining to change and behaviour there is no 'one fits all situations' solution to determining, developing, measuring and implementing change and behavioural programmes within an organisation.
- Organisations embarking on a change programme need to be conscious of the connecting variables within the organisation (power, politics, structure,

employee behaviour) and manage the interfaces in order to create a win-win outcome for both the organisation and the respective stakeholders.

These issues will be discussed later in the thesis in relation to the main findings of the study.

Chapter Five: Methodology

5.1 Introduction

This empirical study seeks to assess the effects of organisational change over a 12 year period within a major power generating plant. The plant was chosen by the author as the most appropriate site in which to carry out the research for the following reasons:

- The plant had gone through three major change initiatives over a twelve-year period from 1990 to 2002. Each change initiative has had an impact on the technology, structures, policies, procedures and practices within the plant.
- The author was a member of staff at the plant for a period of five years from 1999 to 2003. This facilitated easy access to staff, at all levels, artefacts and documentation from within and outside the plant.

The challenge of engaging in research in the social sciences field is that it is difficult to generalise about human behaviour results that can be situational or unique occurrences. The formation of general constructs from insights gained about individuals is a difficult task (Bryman, 2001). The selection of an appropriate research design is fundamental to the success of this thesis. It is also important to know and understand the strengths and weaknesses of the various methodological paradigms. The choice and adequacy of a method that embodies a variety of assumptions regarding the nature of knowledge and the methods through which that knowledge can be obtained, as well as a set of root assumptions about the nature of the phenomena to be investigated (Bryman, 2001). It is important to understand these

assumptions since they influence researchers towards certain ways of thinking about the subject matter in which they are interested as well as aiding them to make decisions on how to undertake the research (Hart, 1998).

The first part of this chapter will outline the context of this study and the data sources used. In the second part a review of the research methodologies will be reviewed and discussed. The third part will outline the research methods used to collect data from within the power plant (primary data) and the organisation (secondary data). Finally, the method used to analyse the data will be discussed in order to form the basis of the findings of the study as presented in chapter 6.

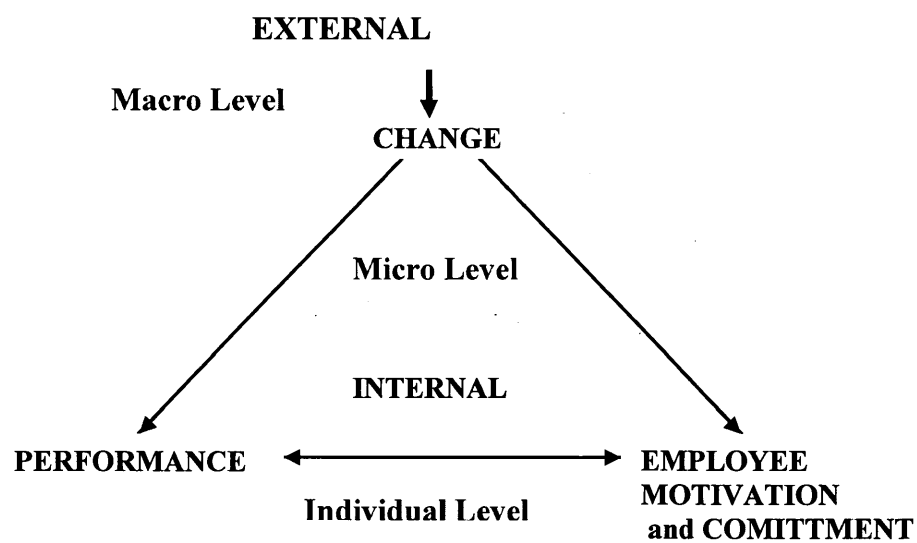
5.2 Research Context

The privatisation of state owned monopolies came about as a direct result of the economic and monetary policies of the then Conservative government (1979-1997) and carried forward by the Labour government of 1997. The decision to privatise the Electricity industry was significant in determining the direction, efficiency and performance of an industry which had virtually stagnated from its inception in the 1920s. The privatisation of the UK utilities was not just a simple transfer of ownership from public to private hands but involved the liberalisation and structural reform of the utilities. Moreover, the government appointed an industry regulator to impose and regulate competition within the industry.

The above change initiative concurs with Grundy's (1993) definition of discontinuous change where an external shock generated major change at the macro level within the organisation, marked by rapid shifts in strategy, structure, culture in this case all three

were affected. Furthermore, the rationale for change was defined by Grundy as operating at three levels within the organisation; the macro or business level, the micro or change project level, and the individual level. Figure 5.1 below represents the influence of privatisation (macro) on the remaining levels of change within the organisation. Moreover, the figure indicates that change in the external environment affected both performance, and employee motivation/commitment but employee motivation and commitment had an equal and opposite affect on the performance of the organisation. The research context of this study will focus on the effect change had on employees at the macro, micro and individual level within the organisation under study.

Figure 5.1 The Substance of Change



As stated earlier the main aim of this study is to assess the effects of change programmes on employees' commitment and motivation over a twelve year period (1990 – 2002) to determine:

- The factors that influence the positive or negative reaction of employees towards change programmes; and
- The extent to which organisational performance influences employees' commitment and motivation to their employer.

The following sections will outline the data sources, the research process and field work undertaken in order to answer the above questions.

5.3 Data Sources

Data for this study were collected from within the generating plant (primary data), in the first instance, and validated using data from within the company, plus data from industry and government publications, and research carried out within companies from different and similar industries (secondary data). Secondary data such as company financial statements, staff magazines, and where possible, management circulars and local team briefings were sourced and reviewed to determine the validity of information presented by the company within the public domain.

The staff survey (questionnaire) was viewed as an important instrument for data collection. The questionnaire (Appendix 4) was designed, in such a way as, to capture data relevant to the research questions posed in chapter one earlier. The researcher was faced with making a decision at this stage. That was to design the questionnaire from scratch or adopt an already developed and tried one. The later option was chosen for the following reasons;

- Plant employees had taken part in a company wide survey in 1995 and in

1997, designed to measure their attitude towards change and leadership within the organisation.

- Data from both surveys (secondary data) could be used as base data for comparison with data from this study.

The staff population at the time of the survey was 100 members, each was sent a self - administered questionnaire to complete and return to the researcher. Forty-eight completed questionnaires were returned for analysis, making a response rate of 48%, which is within the accepted tolerance levels for this type of survey, thus ensuring validity and reliability of results.

Table 5.1 Departmental Response Rates for Staff Survey.

Department	Surveys sent OUT	Surveys RETURNED	% Of Departmental Returns
Operations	**52**	**26**	**50**
Maintenance	**26**	**13**	**50**
Engineering	**22**	**9**	**41**
Totals	**100**	**48**	**48**

Interviews

Data were collected using small groups of staff rather than individual interviews because it was felt that such groups would generate discussion from within the group thus requiring less input from the researcher than a one-to-one interview. This would ensure that any data generated were purely the interviewees' perceptions, rather than being directed and/or contaminated by the researcher. In addition, it was felt that the

ability to discuss the phenomenon with peers in a small group format would facilitate a greater depth of discussion among participants, than just the researcher. It would also help to uncover shared perceptions of the groups, an important aspect for this stage of the study.

Focus Groups

The method chosen in selecting the respondents to take part in the focus groups was the probability sampling method. Many sub sets could have been used. They could have been divided as male/female, full time/part time staff, but the plant population was divided into four sub sets representing the following sub groups: managerial, administration/clerical, industrial, professional and technical. Employees were placed within one of these sub sets according to their role within the organisation, information for which was taken from the job description of the post. In total, 30 employees were interviewed out of a total population of one hundred staff, representing a sample size of 30% (see Table 5.2).

Table 5.2 Focus Group Participation

Group	Participants	Group Population	% of Group Participation
Management	**2**	**4**	**50**
Professional/Engineering	**10**	**30**	**33**
Administration/Clerical	**3**	**10**	**30**
Industrial	**15**	**56**	**28**
Totals	**30**	**100**	**30**

A semi-structured interview (Appendix 5) was developed listing five key areas. These key areas were designed to obtain feedback on the change management programmes

within the organisation, and the plant in particular. The main subject areas were as follows:

- Organisational Culture
- Personal Development
- Performance Management
- Organisational Strategy
- Reward Systems

Focused Interviews

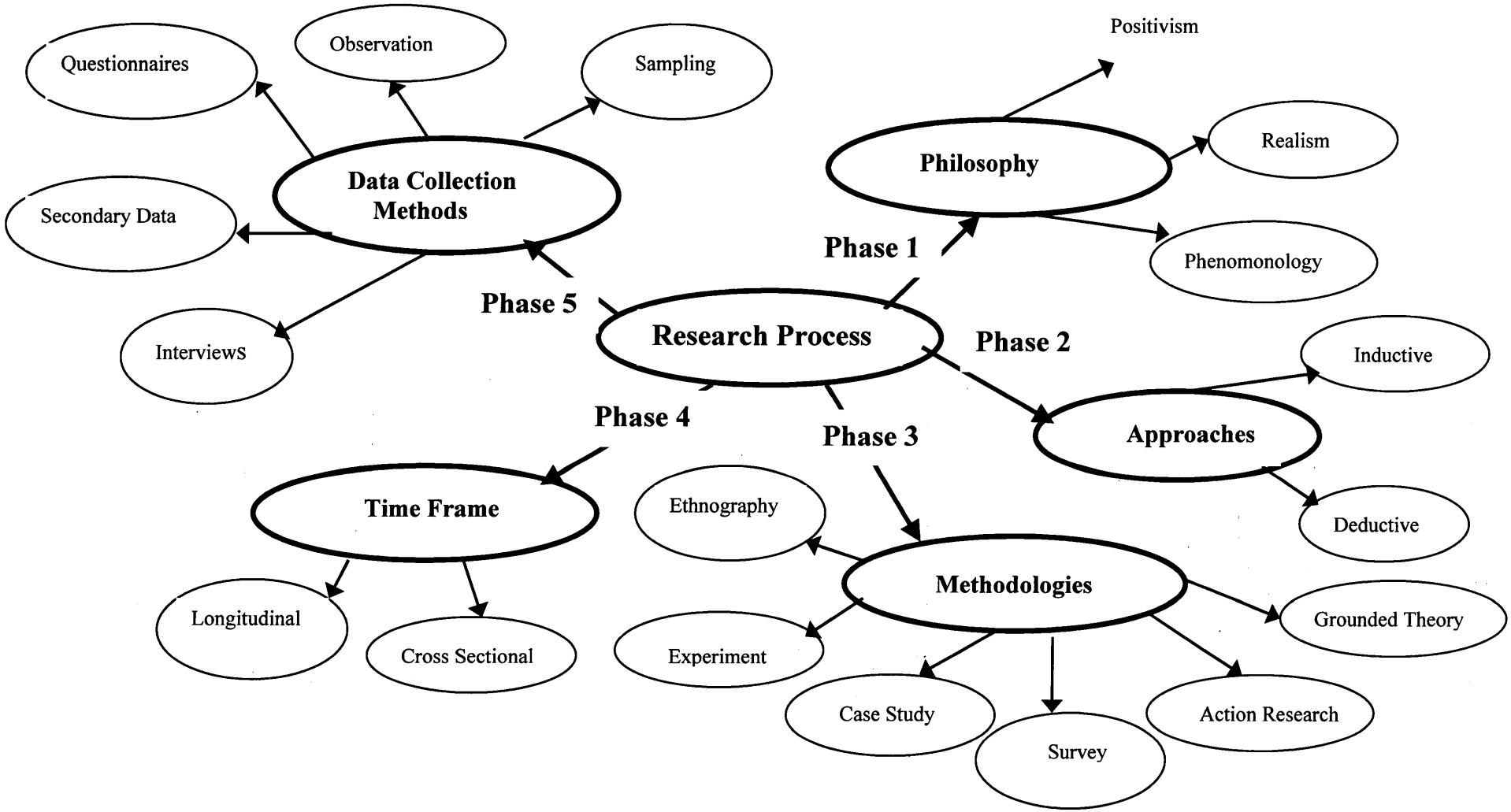
These interviews were carried out across the operations shift teams, over a two-week period. The shift teams, more than other teams within the plant, had borne the major part of the change programmes over the twelve-year period. They have had to adjust to the introduction of new technology, disruption to shift patterns, and restructuring of systems and changes to the interfaces between the plant and head office.

5.4 Research Methodology

The author intends to review in this section the research options available in carrying out an empirical study into the change process within the power plant. It is not the intention to engage in a philosophical debate into the advantages and disadvantages of a particular research ontology, epistemologies and methodologies. However, it is important to acknowledge and to understand the processes which underpin research within the social science arena.

Figure 5.2 below outlines each phase of the research process.

Figure 5.2 Research Process



Phase 1 outlines the choices available to help determine the correct and most appropriate research philosophy. Phase 2 outlines the approaches used in research. Phase 3 examines the research strategies. Phase 4 raises the question of the timeframe the study will take. Finally, phase 5 outlines the different methods available for collecting data.

Each phase will be discussed and evaluated as to their appropriateness to this thesis.

Phase 1 - Research Philosophy

Positivism

This research philosophy is regarded by social scientists as seeking to apply scientific methods to the study of social phenomena. Studies carried out by positivists are used primarily to test theory in an attempt to increase understanding of phenomena. The main points of the positivist's ideology are:

- *There exists a real world of social and physical phenomena.*
- *This real world is objective and tangible.*
- *This world can be analysed in an objective fashion in order to increase understanding of the phenomena.*
- *The methods employed in such research should be objective and impartial, as well as immune from the influence of human values and believes (Riley et-al, 2000).*

Grbich (2004) describes positivism as "*the school of philosophy that asserts that reality lies only in things which can be seen by the eye*" (Grbich, 2004, p.132).

Phenomology – Interpritivism.

This type of research philosophy generally relies on in-depth interviews. Moreover it lends itself to small scale research where the main resource is the researcher. Phenomology is recognised as a humanistic approach to research through its efforts to research the lived experiences of actors in their everyday world.

Realism

Realism believes that human behaviour and actions are influenced by social factors which are out with the individual's control. However within realism recognition is given to the importance of understanding these forces and the influence they have on people's perceptions about their world.

In relation to this study the philosophical sphere is a mixture of positivism and interpretivism since the aim of the study is to research the factors which influence the positive and negative reaction of employees towards change programmes.

Phase 2 – Research Approaches

There are two main terms of reasoning within the research process known as *deduction* and *induction,* both in their own right important in helping the researcher better understand the theory of construction.

- ***Deduction*** is the process which begins with theory then the development of a hypothesis, followed by data collection. The hypothesis is tested against the data to determine and explain the behaviour of the phenomena.

- ***Induction*** is the process where- by the analysis of observation data leads to the construction of a theory which links the observations in a meaningful way.

Gilbert (1993) stated that induction is the technique for generating theories and deduction is the technique for applying them (Gilbert, 1993, p.23).

Phase 3 – Research Methodologies/Strategies

The author intends to review in this section the methodological options available in carrying out an empirical study into the change process within the power plant. Silverman (1993) argued that *"methodologies like theories cannot be true or false, only more or less useful. Each having advantages and disadvantages, being unlikely that there is one best way to approach data collection"* (Silverman, 1993, p.14). It is the concept of 'useful' or being able to be used for a practical purpose in several ways that the author has focused on, in determining the appropriate research strategy for this particular study. The author has reviewed the three types of research strategies that could have been used to collect data for this study. These are: experimentation; surveys; and case studies each of which is reviewed below:

Experimentation.

The experimentation method was rejected for the following reasons:

1. Whilst it might be possible to manipulate one variable to observe the impact on others, it would be impossible to control all other possible variables within a study as complex and multi-faceted as change within the workplace. Robson (1993) commenting on the need for focus within the experimentation strategy observed that "*the major problem in doing experiments in the 'real world'*

(power plant) is that you often don't know enough about the things you are studying for the selectivity of focus to be a sensible strategy. Both survey and case studies are much more forgiving in this respect (Robson,1993, p.78).

2. Data collection for this project was undertaken within a major power plant, which continued to be fully operational throughout the duration of the data collection phase of the study. Hence the near impossibility of being able to guarantee with any significant level of confidence, the internal and external (generalisation) validity of this research project (Bryman, 2001; Robson,1993).

Survey.

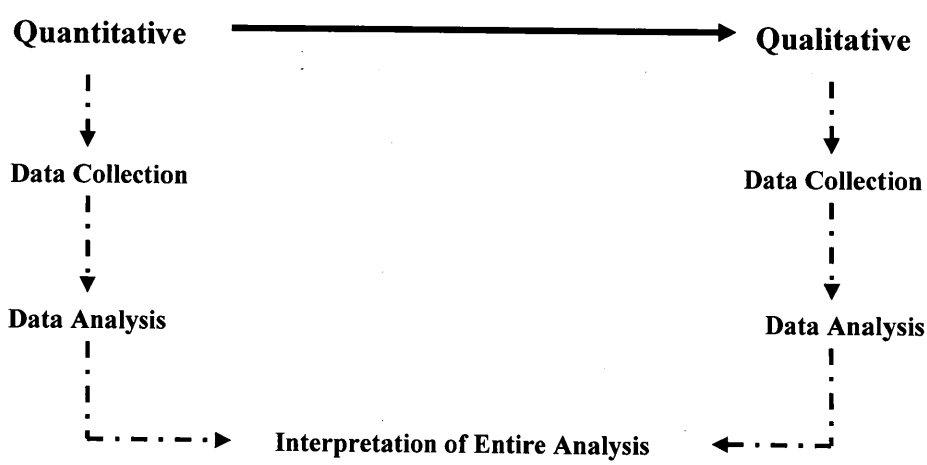
The survey method was rejected, as the sole method of data collection, for the following reasons:

1. This method could be perceived as lacking in depth, and the data collected as unreliable due to the respondent's behaviour in completing the survey, as well as being reliant on a single respondent from within a single organisation.
2. The researcher was a member of staff and had held various management positions over the period of the study (1992 -2002). Therefore the role adopted by the researcher was one of '*complete or total observer*' (Gans,1968; Gold, 1954).
3. Due to the staff positions held, the researcher could have been perceived by other employees as a *'covert observer'*. Thus raising some ethical dilemmas such as the lack of informed consent, invasion of privacy, and deception as to the real purpose of the study (Easterby-Smith, 2003; Bryman, 2001).

Having rejected the experimentation and survey methods, the author would argue that the most appropriate research strategy for this empirical study into the assessment of the effects of organisational change (phenomenon) within a major power plant (context) is the single case study methodology. Cavaye (1998) argued that *"case study research investigates pre-defined phenomenon but does not involve explicit control or manipulation of variables: the focus is on in-depth understanding of a phenomenon and its context"*. Moreover Yin (1994) states that *"A 'case study' is an empirical investigation into a contemporary phenomenon within its real–life context, especially when boundaries between phenomenon and context are not clearly evident and it relies on multiple sources of evidence"* (Yin, 1994, p.13).

The case study methodology uses quantitative and qualitative methods as a means of offsetting the weaknesses inherent within one method with the strengths of the other method (Cresswell, 2003). Figure 5.3 illustrates the sequence used in this study to collect primary data.

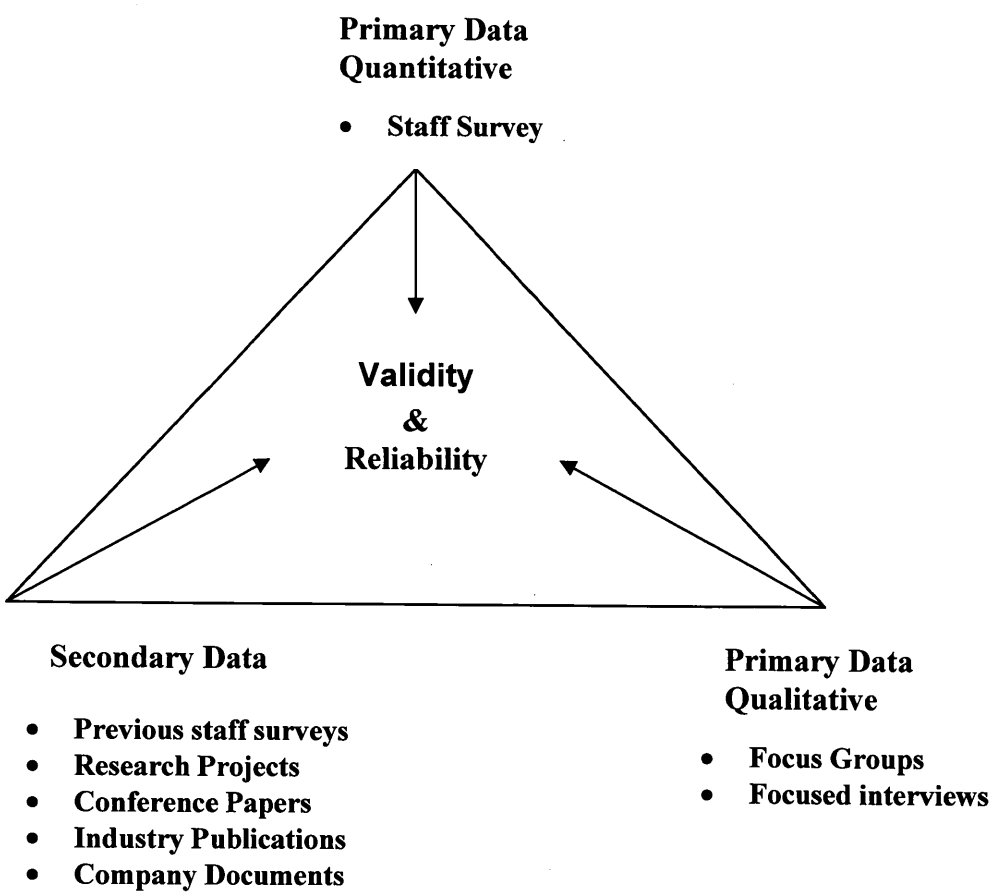
Figure 5.3 Sequential Explanatory Design



Source: Cresswell (2003), Research Design: Qualitative, Quantitative and Mixed Methods Approaches, 2nd Ed page 213, Sage Publications.

The above methodological design was chosen to enable the author to confirm, cross validate and corroborate findings from the data collection and analysis phases of the study. A key aspect of this array of data is the use of qualitative data to help in explaining and interpreting primary data from the quantitative phase of the study (Cresswell, 2003). Thus enabling the researcher to firstly ensure depth and detail from data collected and secondly ensure that the findings accurately reflect and are significant to the total population. Figure 5.4 below outlines the methods employed in this study in an attempt to build in and ensure data validity and reliability through the triangulation of both primary and secondary data.

Figure 5.4 Data Triangulation



Triangulation provided the researcher with a method for testing one source of information against other sources. If both sources of data correlate with each other then, to some degree, they cross validate (internal validation) each other. However, should there be no correlation between them, this offers the researcher the opportunity to investigate the difference in order to identify, understand and explain the difference. The data collection methods (phase 5) adopted for this study into the effects of organisational change within a major power plant are detailed in the next section. Having decided the single case study was the most appropriate research method for this thesis it was important that the correct research design was chosen. In defining the correct design it was important to consider the following points:

- The number of contacts with the study respondents.
- The reference period, or time – frame, of the investigation (Walsh, 2001 p.58).

Table 5.3 below provides an overview of the advantages and limitations of each design.

For the purposes of this study and because change had taken place over a twelve year period the longitudinal research design was chosen. Data from the previous staff surveys (1995 and 1997) were used as base data for comparison with data collected as part of this study.

Table 5.3 The Advantages and Limitations of Research Designs

Number of data collection points	Type of Design	Advantages	Limitations
One contact	Cross – Sectional Study	Simple to plan. Cheap to do. Easy to analyse.	Gives a snapshot only. Can't measure change.
Two contacts	Before-and-after-study	Measures change or impact of interventions between two moments in time.	More wok than cross-sectional. Can be expensive and time consuming. Respondents can change between before and after points; data then lacks validity. You can't be sure of the effect of extraneous variables on findings. Can have a reaction effect.
Three or more contacts	Longitudinal study	Can measure the pattern of change over time.	Involves extensive data collection and analysis. Requires more resources than both of the above studies. You need to have a relatively long period of time available to collect data. Data can be affected by the conditioning effect.

Source: Walsh (2001), Research Made Real – A Guide for Students, Page 61, Nelson Thomes Ltd, Cheltenham, U.K.

5.5 Research Field Work.

Data were collected from within the generating plant (primary data), in the first instance, and validated using data from within the company as well as data from industry and government publications (secondary data). Moreover, primary data were collected via a self administered staff attitude survey and interviews, each of which is discussed below.

5.5.1 Self Administered Questionnaire

As discussed earlier in this chapter (5.3) the staff attitude survey questionnaire was chosen as a main method for collecting data. Having adopted the questionnaire, it was important to check both its relevance and meaningfulness to the plant employees. A pilot study was undertaken by enlisting the help of ten members of staff drawn from across the sub-groups within the plant. As a direct result of the pilot study, some changes to the original questionnaire were made to reflect current 'management speak' within the company as well as changing the company and divisional names. One section was excluded from the 1995 & 1997 questionnaires, that of customer loyalty. The decision to exclude the customer loyalty section was based on the fact that plant employees did not have external customers only internal ones. The questions in the customer loyalty section were all focusing on external customers. However, the internal customer concepts are adequately covered in the team working section of the questionnaire. Question 52 was added to the original survey design to enable staff to assess a range of company performance indicators. Question 53 was added as a guide to determining staff's perception of change, and its effect on performance improvements. Moreover each respondent was requested to record the department they worked within plus the length of service they had with the company. Data extrapolated from each of these subgroups enabled the researcher to validate and generalise findings within each subgroup and the population as a whole.

5.5.2 Focus Groups

The method chosen for the collection of qualitative primary data for this study was group interviews (focus group). The various focus group interviews were constructed, as far as possible, within each work group (operations, maintenance, engineering and

administration). The management team were interviewed separately taking into consideration any possible inhibitors such as perceived status differences and dominant individuals. The non- management respondents were divided into the remaining groups.

Each respondent was sent a confidential internal e-mail explaining the reason for and the subject of the research, why their participation in the study would be appreciated, with the planned venue and time of the respective focus group sessions. A good response was received to the invitations. Perhaps this could be attributed to the fact that the focus groups were to be held at lunch time (free sandwiches, coffee and fruit supplied) and respondents had a longer lunch break than normal!

The focus group interviews were held in a small meeting room within the plant and averaged five respondents per session. Each group sat round a small table (which accommodated the food) thus being convivial towards a relaxed atmosphere at each session. At the outset of each session, respondents were reminded that their input would be totally confidential and anonymous. Acting as a facilitator and manager of the discussion, the author was able to explore different opinions regarding change management initiatives within the plant and the company as a whole. This was achieved with the aid of a semi-structured interview designed in the first instance to measure both qualitative and quantitative data from the interviewees. Secondly to seek to answer the research questions as detailed in chapter one earlier.

As stated above, the questions were designed to measure both qualitative (open ended questions) and quantitative (closed questions) data from the interviewees. The

researcher's previous industrial knowledge and managerial experience of group facilitation enabled him to not only ask the questions but also to investigate the various opinions, perceptions and points of views expressed by the respondents. In total, six focus groups of five members per group were interviewed over a three-week period. All the group interviews were tape recorded which enabled notes to be transcribed as soon as practically possible after each session was completed. No more than two focus group sessions were carried out within a working week to ensure that the various data was not confused and/or mixed across the groups. Although transcribing from a tape recording was an additional time consuming activity, it enabled the groups to be managed more effectively due to the author being able to concentrate on the discussion without having to take copious notes, thus allowing the response to be more accurately transcribed than would have been the case had they been hand written.

In summary, the focus group interviews worked extremely well, with the participants contributing fully to the discussion as well as being extremely honest and open in their responses. When thanking respondents for their attendance and contributions, many stated that they had found it worthwhile. One participant went as far as saying *"that was really interesting today, we should do this sort of thing more often"*. This may have been endorsing the perceived lack of communication within the organisation (as highlighted within the questionnaire responses), or it may have been that staff members enjoyed the opportunity to discuss a subject which is not commonly open for debate across departments within the plant.

5.5.3 Focused Interviews

These interviews were carried out across the operations shift teams, over a two-week period. The shift teams, more than other teams within the plant, had borne the major part of the change programmes over the twelve-year period. They have had to adjust to the introduction of new technology, disruption to shift patterns, and restructuring of systems and changes to the interfaces between the plant and head office. Bryman (2001, p.337) observes that *"interviewees are selected because they are known to have been involved in a particular situation and are asked about that involvement"*. The researcher facilitated each session, while the shift group leader observed the sessions, as well as taking supporting notes. The sessions were designed firstly to measure the respondents' attitude to change within the plant, and secondly to the effect on their working environment and conditions within the plant, brought about by company - wide change. Each session started with the researcher outlining the objectives for the session and asking the following question to each team to open up the discussion –"are you ***committed to*** or ***compliant with*** recent changes"? The process of data collection was similar to that for the focus groups.

5.6 How the Data were Validated and Analysed.

This section describes the process used to validate and analyse data from the questionnaire by comparing the results from the 2003 survey against data collected from the 1995 and 1997 surveys.

5.6.1 Initial Validation

Questionnaire

Data from the staff survey was sub-divided into tables. Each table compared the responses within the main categories between 1995, 1997, and 2003. Data presented in each table represents the percentage of respondents who agreed with each statement within the survey. The percentage figure presented is a combination of those who strongly agreed plus those who agreed with each statement. The remaining responses (neutral, disagree, and strongly disagree) were deemed to have disagreed with each statement. Each table is designed to represent a separate set of conditions as outlined below:

- Positive Response – represents an ***increase*** of >10 in percentage of respondents that agree with the statement between 1995 and 2003.

- Negative Response – represents a ***decrease*** of >10 in percentage of respondents who agree with the statement between 1995 and 2003.

- Flat Response – represents a move of <10 in percentage of respondents who agree with the statement between 1995 and 2003.

- Miscellaneous Response– represents a varied response with the statement across the three surveys between 1995 and 2003.

Table 5.4 illustrates the conditions described above, using questions from within the Direction category of the staff survey (2003).

Table 5.4 Response Conditions

Category	Question No	1995 %	1997 %	2003 %	Response Description
Direction	**2**	**43.9**	**58.9**	**89.5**	**Positive**
	7	**80.5**	**73.4**	**37.5**	**Negative**
	1	**83.5**	**84.8**	**87.5**	**Flat**
	6	**61.3**	**71.6**	**56.3**	**Miscellaneous**

Classification of the data as outlined above in Table 5.4 enabled the researcher to identify trends, groupings and themes within the survey data.

Interviews

Qualitative data collected via the focus groups and focused interviews were transcribed to present the comments made by respondents during each session.

Quantitative data collected during the focus group sessions are presented in Table 5.5 below. Data were presented in this format to enable the researcher to compare the percentage of respondents who agreed with the statement with those who agreed with the same or similar statement within the self administered questionnaire.

Table 5.5 Focus Group Quantitative Analysis

Category	Question	No of populatio who agree	% of population
Career Mgt	Should career management form part of the company's policies?	28	93
Culture	Would culture determine whether employees stay with a company?	24	80
T&D	Is it important that the company provides opportunity for T&D?	26	86
Recruitment	Was the opportunity given to discuss self-development?	13	43
	Were any action plans completed fully?	9	29
Performance Mgt	Have you received a performance appraisal in the last year?	18	60
	Were personal development plans discuss	13	41
Company Strategy	Do you know what the future plans of the company are?	12	40
	Do you know what the future plans for the plant are?	9	29
	Do you know how your personal performance contributes to company performance?	20	66
Reward	Should there be a link between contributi and reward?	27	90

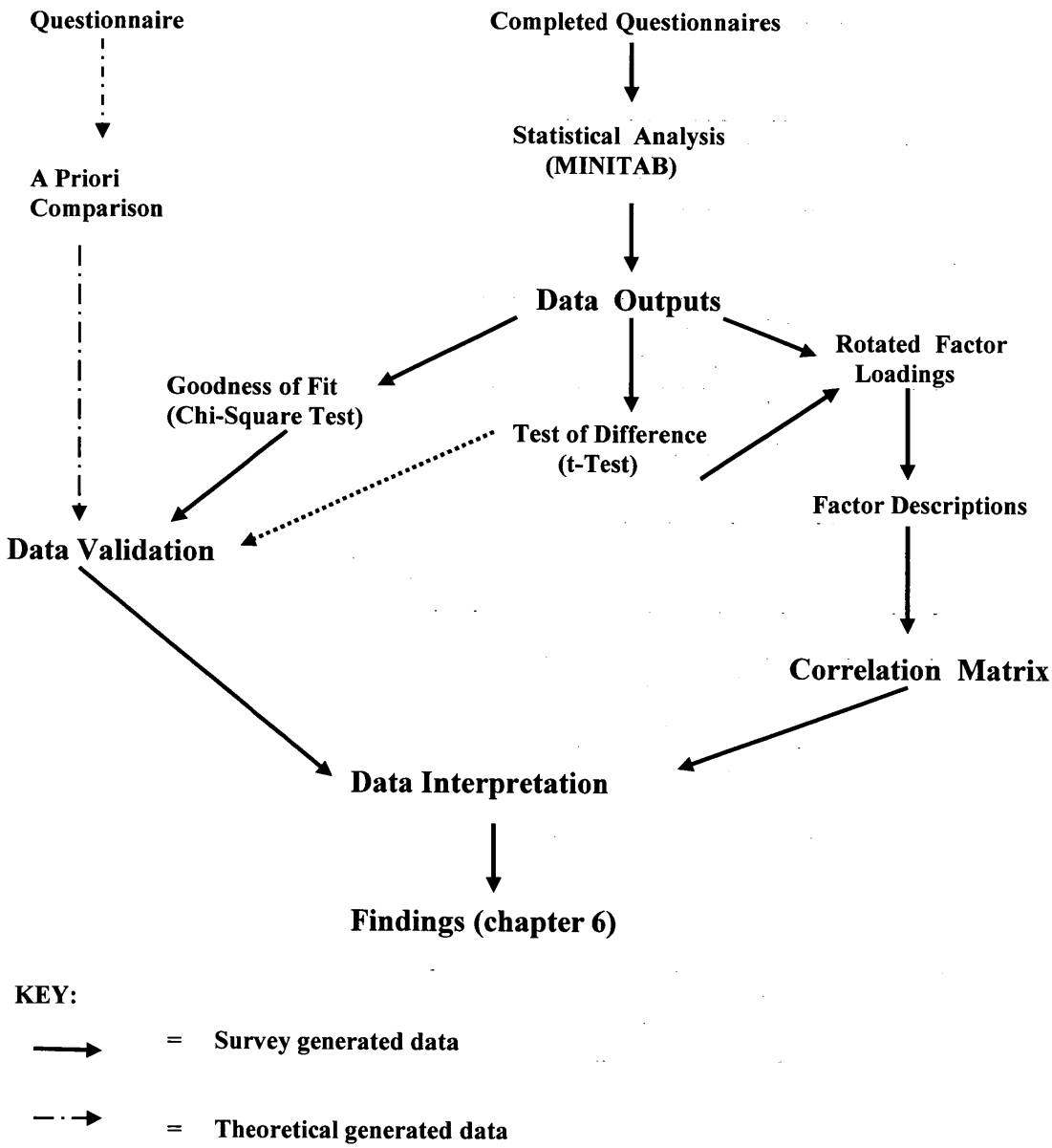
5.6.2 Survey Data Analysis

Survey data are presented under the following main headings: data flow, data validation, factor analysis, and data interpretation.

Data Flow

Figure 5.5 below shows the flow of data from survey administration through to data interpretation and findings of study.

Figure 5.5 Data Flow



A Priori Comparison

This technique was applied with the aim of predicting the likely responses, by staff members, to each of the survey questions. Moreover, the presumptions made were based on the theoretical knowledge the researcher had of both the organisation and in particular the power plant.

Table 5.6 illustrates the results obtained from the A Priori Comparison with respect to the Change category within the survey as an illustrative example. The results from the full survey are detailed in Appendix 3 and discussed in Chapter 6 of this thesis.

Table 5.6 CHANGE

The shaded cells identify a difference between the A Priori and Observed values.

A = Agree N = Neutral D = Disagree

Q No	Statement	Mean	Observed	A Priori
12	**In general, changes in my part of the business have been managed well.**	**3.87**	**D**	**N**
13	**I believe my immediate boss presents change to me in an open and honest way.**	**2.67**	**A**	**A**
14	**I believe I have been involved in changes that affect me.**	**3.33**	**D**	**D**
15	**When change is necessary, Senior Managers show concern about the effect on staff.**	**4.31**	**D**	**D**
16	**I believe the pace of change within the company is too fast.**	**2.85**	**N**	**A**
17	**I believe the performance of the company will improve as a result of change.**	**3.21**	**D**	**N**

In order to test the significance of results obtained from questions 12 and 17, above, a null hypothesis of Ho: the mean value equals 3 was adopted. Moreover, if this proved not to be the case the alternative hypothesis of Ha: the mean value does not equal 3 would be adopted. Table 5.7 below shows that the null hypothesis was rejected therefore the alternative hypothesis was adopted. Appendix 4 records the full one way t Test results from the survey.

Table 5.7 One Way t Test : Change

Variable	N	Mean	St Dev	T	P	Test
Q12	48	3.88	1.10	5.49	0.000	Mu =3 vs not 3
Q13	48	2.67	1.24	-1.86	0.035	Mu = 3 vs < 3
Q14	48	3.33	1.36	1.7	0.048	MU = 3 vs > 3
Q15	48	4.31	0.90	10.1	0.000	MU = 3 vs > 3
Q16	48	2.85	1.12	-0.90	0.188	Mu = 3 vs < 3
Q17	48	3.21	1.1	1.32	0.192	Mu =3 vs not 3

Chi-Square Test

The plant staffing level at the time of the study (2003) was 100 members, who were sent a self-administered questionnaire to complete and return to the researcher. Forty eight completed questionnaires were returned, making a return rate of 48%. Table 5.8 below shows the response rate per years of service of respondents. Moreover, data of year's service is recorded as an illustrative example of the Chi-Square Test.

Table 5.8 Survey Response Rate based on Years of Service

Years service	Surveys Sent Out	Surveys Returned	% Response
<10 yrs	31	15	48
>10 yrs	69	33	48
Totals	100	48	48

In order to test the significance of the results in Table 6.7 (chapter 6) it was necessary to subject data to the *'Chi-Square Goodness of Fit Test'*, with a null hypothesis of *Ho: the response rates are equal across the population.* Moreover, if this proved not to be the case the alternative hypothesis would be adopted.

Ha: the response rates are not equal across the population.

Table 5.9 below indicates that the response rate was not significantly different between those with 0-10 years service and those with longer service ***(x (1) = 0.003; P > 0.05),*** thus the null hypothesis is accepted. Moreover, the response rate for the departments was not significantly different ***(x (3) = 1.112; P > 0.05),*** thus the null hypothesis is accepted.

The test results below indicate that any conclusions drawn from the data can be applied across the population, irrespective of department and years of service.

Table 5.9 Chi-Square Test: Surveys Returned, Non-Returned – Years of Service

Chi-Square contributions are printed below expected counts

Years of Service	Returned	Non — Returned	Total
<10yrs	15 14.88 0.001	16 16.12 0.001	31
>10yrs	33 33.12 0.000	36 35.88 0.000	69
Total	48	52	100

Chi-Sq = 0.003, DF = 1, P-Value = 0.959

Multivariate Data Analysis: Factor Analysis

The complex data generated from the staff survey were subjected to testing and analysis through the 'Factor Analysis' statistical technique. This technique was chosen for its ability to simplify data into factors which reflect the correlation of the

variables (survey questions) with the factor (survey categories). Furthermore, each category can be explained and represented in terms of a few underlying factors. The rest of this section presents the results from the data analysis under the following headings: factor loading, factor identification and factor correlation.

Factor Loading

The loading of each factor represents the proportion of variance (eigenvalue) contained in each factor. Moreover, only factors with an eigenvalue of greater than 1 were included in the analysis (Kaiser Criterion). As an illustrative example, only variables within the Change category are presented below in Table 5.10. Appendix 5 shows the total factor loadings within each survey category.

Table 5.10 Sorted Rotated Factor Loadings: CHANGE

Variable	Description	Factor 1	Factor 2
Q 14	Belief of being involved in Change.	0.843	0.000
Q 12	Change was well managed.	0.738	0.000
Q13	Boss presents change openly and honestly.	0.739	0.000
Q15	Senior managers show concern for staff.	0.590	0.000
Q16	The pace of change is too fast.	0.000	0.904
Q17	Company performance improved by change.	0.000	(0.645)
Variance		2.4034	1.4758
% Var		0.401	0.246

The results shown above indicate that:

- Factor 1 explains 40% of the variance. Furthermore, factor 2 accounts for a further 24.6 % of the variance giving an overall value of 64.7%. This percentage loading is at an acceptable level for this type of analysis.

- Factor 1 loads on questions 14, 12, 13 and to a lesser extent question 15. Moreover, factor 2 loads on questions 16 and 17.

The next section will describe these factor loadings in order to attach the appropriate identification to each factor, which will aid the analysis as recorded in section 6.5.

Factor Identification

Factor 1 was labelled 'Managing Change' since the loadings (Q 14, 12 and 13), which make up this factor, were concerned with the management of change.

Factor 2 was labelled 'Pace of Change' since the loading question 16 was concerned with the pace of change. The negative loading in Factor 2 (q17) indicates that company performance will influence the pace of change and vice versa.

Appendix 6 illustrates each factor correlated relationships within each category with the questions which go to compile each of the factors. Furthermore, Table 5.11 below shows the identifications attributed to each of the survey categories. The table shows that the total percentage attributed to the sum of the factors within each category is greater than 60, therefore acceptable for this type of analysis. Moreover, the shaded part is added to highlight the change section to aid comparison with figures recorded in the previous section.

Table 5.11 Factor Identifications

Factor	Survey Question Nos	Var %	Interpretation
D1	7, 10, 8, 11, 6, 1.	29.2	Corporate Confidence
D2	5,2.	13.5	Market Competition
D3	4, 3, 9.	13.4	Continuous Improvement
C1	14, 12, 13, 15.	40.1	Managing Change
C2	16, 17.	24.6	Pace of Change
S1	18, 19, 22.	39.4	Corporate Safety
S2	21, 20.	30.9	Collegial Safety
QA1	23, 26.	38.7	Corporate Standards
QA2	24, 25.	37.5	Personal Standards
PM1	37, 29, 30, 36, 32, 28.	27.2	Employee Motivators
PM2	35, 34.	16.7	Terms and Conditions
PM3	32, 31, 27.	16.7	Personal Objectives
L1	38, 40.	48.3	Management Support
L2	39.	34.2	No Blame Culture
CM1	47, 41, 45, 44, 42.	32.9	Informed Staff
CM2	44, 46, 43, 42.	28.3	Information Sharing
T1	50, 51, 49.	43.0	Team Effectiveness
T2	49, 48.	29.2	Team Membership
G1	52T, E, O, S.	35.1	Corporate Performance
G2	52F, 53, 52S.	30.6	Plant Performance

Factor Correlation

The Pearson correlation for each pair of factors was found to determine the degree of agreement between identified factors see (Table 6.10). Moreover, pairs of factors with a p value of < 0.05 were selected for further analysis. Furthermore, factors with a p value of > 0.05 were excluded from the final analysis, since any correlations are likely to have arisen by chance rather than certainty. Table 5.12 below shows the correlated relationships. Results from the data analysis phase of this study are presented in chapter six and discussed in chapters seven and eight of this thesis.

Table 5.12 Factor Analysis - Correlated Relationships

Strong Correlation : $p < 0.01$ Weaker Correlation : $p < 0.05$ No Correlation: $p > 0.05$

	D1	D2	D3	C1	C2	S1	S2	QA1	QA2	PM1	PM2	PM3	L1	L2	CM1	CM2	T1	T2	G1	G2
D1		0.00	0.00	0.67	0.10	0.63	0.01	0.48	0.01	0.60	0.23	0.05	0.60	0.25	0.60	0.23	0.54	0.10	0.76	0.02
D2			0.00	0.01	0.40	0.18	0.17	0.08	0.36	0.19	0.10	0.18	0.06	0.07	0.01	0.09	0.04	0.28	0.06	0.25
D3				0.13	0.16	0.06	0.28	0.08	0.09	0.01	0.23	0.16	0.10	0.18	0.05	0.31	0.00	0.03	0.11	0.31
C1					0.00	0.59	0.13	0.58	0.02	0.72	0.10	0.12	0.54	0.03	0.73	0.06	0.54	0.19	0.65	0.00
C2						0.05	0.15	0.30	0.16	0.19	0.10	0.20	0.15	0.00	0.26	0.21	0.04	0.20	0.04	0.46
S1							0.00	0.49	0.04	0.56	0.25	0.03	0.60	0.06	0.70	0.22	0.58	0.05	0.62	0.01
S2								0.02	0.30	0.24	0.01	0.31	0.24	0.09	0.27	0.31	0.03	0.36	0.21	0.01
QA1									0.00	0.66	0.00	0.14	0.46	0.26	0.63	0.13	0.43	0.06	0.49	0.15
QA2										0.05	0.12	0.35	0.02	0.02	0.19	0.28	0.26	0.24	0.22	0.35
PM1											0.00	0.00	0.64	0.18	0.76	0.16	0.55	0.14	0.66	0.17
PM2												0.00	0.24	0.29	0.05	0.12	0.08	0.22	0.20	0.22
PM3													0.01	0.18	0.12	0.10	0.06	0.10	0.19	0.23
L1														0.00	0.61	0.08	0.35	0.12	0.56	0.01
L2															0.12	0.28	0.04	0.03	0.40	0.01
CM1																0.00	0.69	0.13	0.64	0.22
CM2																	0.22	0.05	0.23	0.26
T1																		0.00	0.69	0.16
T2																			0.11	0.02
G1																				0.00
G2																				

5.7 Conclusion.

This thesis was undertaken to assess the effects and perceptions of organisational change (phenomenon) on the employees' motivation and commitment (context). Hence the choice of a 'single case study' methodology as the most appropriate research strategy for this study. The review of research methodology identified key epistemologies and methodologies within the social sciences arena. There are two epistemologies which have been influential in social sciences: 'positivism' and 'interpretism'. The positivism paradigm applied to social research maintains that social reality should be studied through the same investigative logic and methods as applied within the natural sciences. However, according to the interpretism there exists a fundamental 'epistemological' difference between social and natural sciences, in that social reality cannot simply be observed but needs to be 'interpreted'. The key distinction between positivism and interpretivism is their perceptions of the social world. The positivist perspective makes a distinction between the external world (social) and the internal world (individual cognition). The positivist aim to explain and predict external reality. It implies that human beings are not active participants or influencers of their physical and social worlds. The interpretivists however reject the notion that there can be a separation between the two worlds. Their focus is on explaining how individuals experience and describe the world they operate within.

It is also suggested that research methods bring with them a cluster of epistemological and ontological commitments. In other words, if a researcher chooses to administer a self-administered questionnaire they are deemed to have adopted a positivist viewpoint within the natural science ideology. Similarly, the use of participant observations ties the researcher to a commitment to interpretivism and

constructionism. The distinction between the two epistemologies is made between quanlitative and quantitative research methodologies. The main distinction orientates around quantitative researchers employing measurement and qualitative researchers employing interpretation.

Data for this study were collected from within the generating plant (primary data), in the first instance, and validated using data from within the company as well as data from industry and government publications, and research carried out within companies from different and similar industries (secondary data). Secondary data such as company financial statements, staff magazines, and where possible, management circulars and local team briefings were sourced and reviewed to determine the validity of information presented by the company within the public domain.

The findings from the analysis of the data collected are presented in the next chapter.

Chapter Six: Data Analysis and Presentation of the Findings

6.1 Introduction

In this chapter the findings from primary data (questionnaire and interviews) and secondary data (company annual financial reports, staff magazine articles and internal reports) are presented. The first part of the chapter outlines the findings from the secondary data of this study. In the second part the results from the data analysis of the 2003 staff survey, focus groups and the structured interviews will be analysed and presented with the use of tables and graphs. Finally, conclusions from the main findings will be drawn in order to form the basis for the discussion in chapter 7 and the conclusions in chapter 8.

6.2 Findings from the Secondary Data

This section outlines the organisation's financial performance and customer satisfaction.

6.2.1 Financial Performance

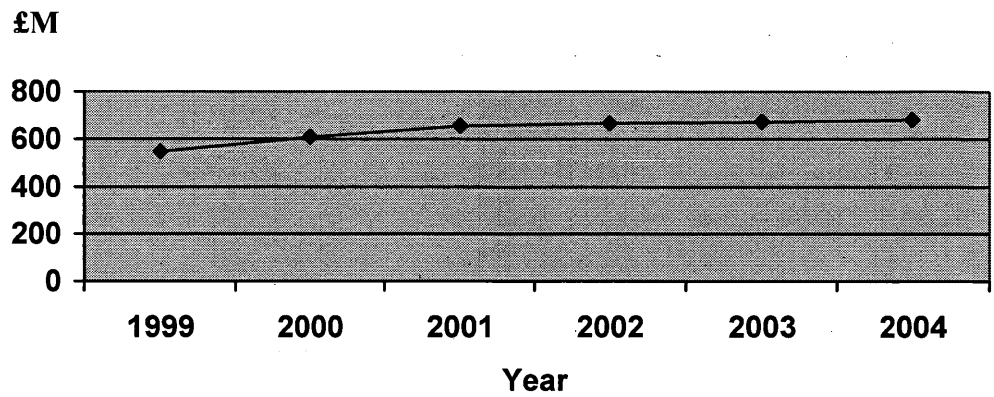
The financial performance of the organisation is assessed using the following financial measures; operating profit, earnings per share, and cost savings, each of which is discussed below:

Operating Profit

Analysis of the financial accounts from 1999 to 2004 indicates that there was an overall increase of 24%. However, the trend indicates a gradual slowing down, year on year, of the annual increases from 11.3% in 1999 to 2000 to a 4.1% increase in the

financial year 2003 to 2004. Moreover, the operating profit for financial year 2002 to 2003 dropped to a 0.75% increase. Figure 6.1 below outlines the company's operating profit for financial years 1999 – 2004.

Figure 6.1 Operating Profit

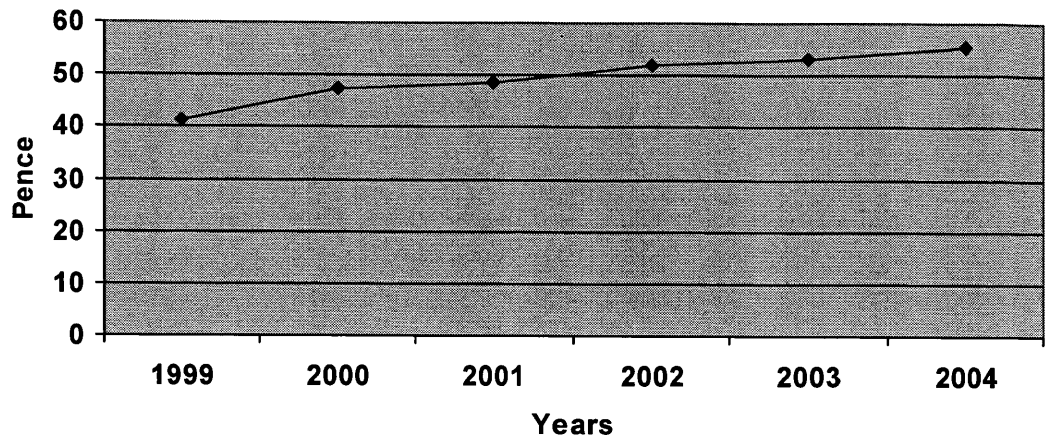


Source: Company Annual Reviews 1999 – 2004

Shares

Figure 6.2 below shows an increase of 35% in earnings per share over a five year period from 1999 to 2004. However, this increase was mainly due to an increase of 15.6% in financial year 1999/2000. The financial years 2000 and 2002 show a steady increase of 7%. Moreover, in the financial year 2002/2003 the percentage increase fell to just 2.5%, rallying slightly in financial year 2003/2004 to 4.1%.

Figure 6.2 Earnings per Share



Source: Company Annual Reviews 1999 – 2004

Cost Savings

In its submission to the stock exchange in 1998 the company forecasted cost savings of £60m as a direct result of the merger with company 'B'. However, the company's Annual Financial Review of March 2004 reported annualised merger cost savings of £175m. This represented, in real terms, an increase of £115m of savings against the original forecast of £60m. Overall, the financial performance of the company improved year on year from 1999 to 2004, giving the company one of the strongest balance sheets in the global utility sector ensuring a good credit rating over the long term (Company Annual Review and Summary Financial Statement, 2004). Moreover, the total remuneration package for Executive and Non – Executive Directors increased year on year from £1.6 million in 1999 rising to £2.3million in 2002, an increase of 44%.

6.2.2 Customer Satisfaction

Ensuring continued customer satisfaction was a key performance indicator for the organisation since customer retention was critical to the long – term future of the organisation. Furthermore, the company needed to continually deliver and beat its competitors in the following performance standards; service, price, safety, and delivery of supply (keeping the lights on). Customers were no longer satisfied with just receiving the basic service delivery but were continually seeking companies who delivered a service that was above and beyond the legal and regulatory guidelines. Moreover, the purchasing power of customers could not be underestimated within the electricity market place with the regulator actively encouraging customers to switch suppliers in order to get a better deal in price and service.

Service Performance- According to the J.D. Power and Associates 2002 UK Electricity Supplier Domestic Customer Satisfaction Study the company was ranked top for customer satisfaction along with French owned London Electric. The study was designed to measure customer satisfaction across five factors (in order of importance): supplier image, price and value, power and reliability, meter reading, and billing and payment. The results were based on a survey of 4500 domestic electricity customers throughout the UK (Company Press Release, October, 2002). Moreover, due to the pricing restrictions placed on the company by the regulator the company offered non monetary incentives to domestic customers leading to a doubling of new customer accounts during financial year 2002/2003 (Company Preliminary Results, March, 2003).

Customer Satisfaction– In announcing the capping of electricity prices (RPI-X), the Director General of Gas and Electricity stated "This is a good day for customers. They will see lower prices, better quality of service, and continuing scope for attractive competitive offers" (OFGEM, December, 1999). The company announced a cut of £10 in electricity prices for domestic customers in March 2002. The chief executive commenting on the reduction stated: *"the average household bill is already 10% lower in real terms than it was five years ago and 25% lower than ten years ago"* (Company Press Release, July, 2002).

Customer Retention

In 2002, The Office of Gas and Electricity Markets published figures indicating that the current rate of customers switching suppliers within the electricity market was 38%. Against this industry trend, the company's customer base has increased 40% from 3.3 million domestic customers in 1999 to 5.5 million in 2004 as detailed below.

Table 6.1 Net Increase of Customers (1999 – 2004).

Financial Year	Customer Base Previous (M)	Customer Base Current (M)	Customers Gains
1999/2000	3.3	3.6	300,000
2000/2001	3.6	4.2	600,000
2001/2002	4.2	4.25	55,000
2002/2003	4.25	4.6	330,000
2003/2004	4.6	5.5	900,000

Source: Company Annual Financial Reports 1999 to 2004.

It could be argued that given the strong financial, service, and customer performances over the period 1999 to 2004, the organisation was operationally and commercially successful thus meeting one of the criteria as set out in the study aims.

6.2.3 Plant Staffing Levels

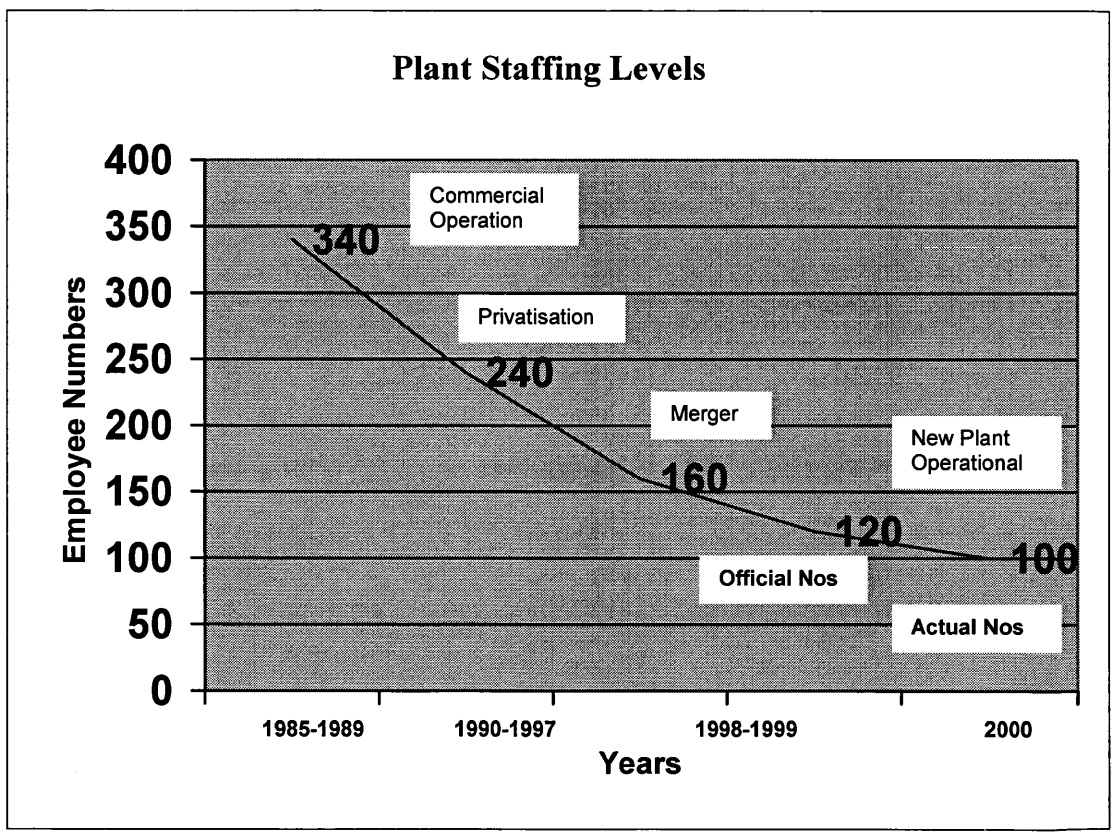
Figure 6.3 below shows the plant staffing levels from initial commercial operation (1985) through to commissioning of the re-powered plant in 2000. Indications are that staffing levels were progressively reduced between and during major operational and/or regime changes. Moreover, from 1998 to 2002 there was a shortfall of some 20 staff members between the official staffing level of 120, and the operational staffing level of 100.

In order to remain commercially competitive a twelve hour shift pattern was introduced into the operations department. This situation has to be viewed against the comments made by the Thermal Manager (1999) *"Getting to the lowest cost per megawatt hour means ensuring that the plant is best used in terms of manning levels"*. In an article reported in the staff magazine (Issue 7, May, 2000), the Director of Human Resources was asked to respond to staff questions about human resources issues. One such question posed was 'with a number of staff leaving aren't we losing essential skills? The HR director's response was *"no. we will always ensure we have staff qualified and experienced to carry out our work and as some people move on it gives our staff the chance to develop into different roles"*.

To gain a wider picture the HR director's comment, this should be compared with the comments of plant employees made during the focus and group interviews. One

group leader stated that "*The whole concept of Voluntary Severance Settlement (VSS) appeared to be a total shambles. Staff members who did not fit the criteria of being able to operate the repowered plant were told they were surplus to requirements. Their departure date was delayed and they have been asked to reconsider and tear up their VSS offer. Surely it would have made more sense to take over the plant and see how it performed before running down staff numbers. To lose a person with (employee X's) knowledge and commitment was unforgivable*" *(Group Leader).*

Figure 6.3 Plant Staffing Levels (1985 – 2000)



Moreover, another member of the shift teams was equally scathing in his comment about the VSS system, but perhaps a little less diplomatic, as can be seen from this statement

> *"staffing levels have been set too low people are being messed around, VSS volunteers are now being asked to rip up their contracts and stay on as permanent staff. Who is responsible for getting it wrong, are they getting their a..e (backside) kicked as we do if we make a mistake ?"*

An Operator with more than 10 years service, commenting in the staff survey said:

> *"I believe that the company has sacrificed technical and staffing level integrity on the basis of short term returns to be delved out as shareholder dividends. Long term I believe this could prove disastrous for the company."*

The next section will detail the findings from the staff surveys, focus groups and structured interviews.

6.3 Findings from the Staff Surveys

This section will detail the results from the January 2003 staff survey and compare the responses with that of 1997. The staff survey of 1997 was selected, as the comparator in an effort to ensure that employees with less than five years service are included in the comparison as far as practically possible. The results are presented in tabular form within the following parameters: survey results, 'A' priori, one sample t tests, and 1way ANOVA tests.

The shaded cells within the survey results section indicate a minimum of 10 percentage point increase or decrease in the proportion of employees who agree more

or less with the question in 2003 when compared with the 1997 survey responses. The 'A' priori column records the researchers' predictions of the respondents' responses to each question. The predictions are based on the researcher's knowledge of both the organisation and in particular the power plant. The results within the t test section are governed by the Likert scale used in the survey where 1 equalled strongly agree and 5 equalled strongly disagree. The shaded cells within the ANOVA section indicate that p is less than 0.05 and the blank cells represent a p value greater than 0.05. Shaded cells under the ANOVA column indicate which department and/or years' service of the participants agreed relatively more with the statement.

Direction

Table 6.2 below shows the results for the Direction section of the survey indicating that staff recognised that the company was more successful in 2003 than it was in 1997 with question 2 showing an increase of 31.3 percentage points by respondents who agreed more with the statement. Furthermore, the results also indicate that questions 8, 7, 11, 9, and 6 show a decrease of 38.5, 35.9, 19.3, 16.9, and 15.3 percentage points of respondents who disagreed more in 2003 with the statement than they did in 1997. Results from the one-way ANOVA tests indicate that there were no significant differences between years of service and departments with any of the statements in this section of the 2003 questionnaire.

Survey results indicate that plant staff were less confident about their future employment with the company now (2003) than they were in 1997 ($t(48) = 1.40$; $p>0.05$). Responses from the focus groups indicated staff agreed that the culture of the company would influence their decision to stay with the company but respondents did

accept in some circumstances such as age, service, and availability of jobs locally would be factors which would influence their decision to remain with the company. These members of staff could be classified as "quit and stayers" where they have psychologically switched off yet still physically remain with the organisation. If this assumption/premise is accepted it certainly presents the company and local management with a problem in how to motivate such members of staff.

Results from the staff survey show that staff were confident that the company had a successful future ($t(48) = -2.04$; $p < 0.05$), but they were uncertain about their future employment with the company ($t(48) = 1.40$; $p > 0.05$).

Table 6.2 DIRECTION

Survey Results						One Sample t Test						1 Wav ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
1	I understand the company's values.	83.5	84.8	87.5	A	48	2.71	0.91	- 6.37	0.000	A		
2	The company is successful in comparison with other Energy Companies.	43.9	58.2	89.5	A	48	1.94	0.84	- 8.81	0.000	A		
3	I believe our overall business performance can be significantly improved.	79.5	78.8	77.0	A	48	2.31	0.97	- 4.91	0.000	A		
4	I believe it is necessary for all of us to accept continuous improvement if the company is to achieve its objectives.	90.8	89.0	81.3	N	48	2.71	0.78	- 7.39	0.000	A		
5	I believe the company will continue to change as a result of competition.	92.1	93.9	89.6	N	48	1.80	0.65	- 12.86	0.000	A		
6	I am confident that the company has a successful future.	61.3	71.6	56.3	A	48	2.71	0.99	- 2.04	0.023	A		
7	I am proud to work for the company.	80.5	73.4	37.5	A	48	3.10	1.11	0.52	0.302	N		
8	The company acts with integrity.	50.9	63.5	25.0	D	48	3.46	1.10	2.91	0.003	D		
9	I believe my job in the future will be different from today.	85.4	88.1	71.2	D	48	1.96	0.74	- 9.72	0.000	A		
10	I am confident about my future employment with the company.	33.0	42.4	37.5	A	48	3.23	1.13	1.40	0.084	N		
11	The executive as a team provides consistent direction and leadership.	31.1	42.4	23.1	D	48	3.63	1.10	3.92	0.000	D		

Furthermore, this insecurity stems from the fact that they recognised that the organisation would continue to change as a result of the competition ($t(48) = -12.86$; $p < 0.05$). This situation is hardly surprising considering that over a number of years (1985 – 2000) the employees' experience of change within the organisation and in particular within the power plant was one of a lack of personal development, increased workloads, and reduced staffing numbers.

Employees agreed or strongly agreed that for the company to achieve its objectives staff would need to accept a culture of continuous improvement ($t(48) = -7.39$; $p < 0.05$) which is similar in concept to Handy's *'task culture'*. Furthermore, employees believed that overall business performance could be significantly improved ($t(48) = -4.91$; $p < 0.05$) and that the company would continue to change as a result of competition within the market place ($t(48) = -12.86$; $p < 0.05$). The above results show that plant staff were aware of and agreed that the company needed to continually improve and expand within the market place through continuous change.

Change

Table 6.3 below shows that questions 15, 12, and 17 decreased by 15.7, 12.3, and 11.0 percentage points respectively, of those respondents in 2003 who agreed less with the question than respondents in 1997. Moreover, question 16 shows an increase of 15.1 percentage points of respondents who agreed more with the question in 2003 than in 1997. Although the respondents in 2003 agreed their boss presented change openly and honestly, they disagreed that change was managed well in their part of the business and that senior managers showed concern for the effect of change on staff. Furthermore, those with less than 10 years' service agreed more that change had not

been managed well within their department. Results from the staff survey (2003) supported the above points with employees agreeing that the company does not act with integrity towards employees ($t(48) = 2.91$; $p < 0.05$) and that the executive' failed to provide consistent direction and leadership ($t(48) = 3.92$; $p < 0.05$). Furthermore, the management style within the organisation changed from a bottom up approach (1995-1998) to a highly controlled top down style of management (1999-2003). Results from the staff survey (2003) revealed that employees did not believe they had been involved in the change process ($t(48) = -1.36$; $p > 0.05$).

Data from the focus group sessions identified that 40% of the respondents acknowledged that they knew something about the company's future plans whilst 30% of the respondents had known what the future plans of the plant were. Moreover, 60% of the respondents knew how they personally contribute to the overall performance of the organisation.

Results from the study have shown that the leadership approach was very much a top-down with the CEO investing a lot of personal time to the initiative in the early stages. Furthermore, the change was transformational and the pace of the transformation was considered by the employees to be too fast ($t(48) = -0.9$; $p > 0.05$).
The need for the change was accepted as necessary by the employees ($t(48) = -12.86$; $p < 0.05$), but the implementation method was the factor which united the plant employees opposition and resistance to the change initiative.

Table 6.3 CHANGE

SURVEY RESULTS						One Sample t Test						1 way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
12	Change was managed well in my part of the business.	35.6	31.1	18.8	N	48	3.88	1.10	5.49	0.000	D	<10Yrs 0.043	
13	Immediate boss presents change openly and honestly.	63.1	53.6	58.4	A	48	2.67	1.24	- 1.86	0.035	A		
14	Belief of being involved in change.	52.2	47.8	39.6	D	48	3.33	1.36	1.70	0.048	D		
15	Senior managers show concern for the effect of change on staff.	26.9	26.2	10.5	D	48	4.31	0.90	10.10	0.000	D		
16	The pace of change is too fast.	48.7	37.0	52.1	A	48	2.85	1.13	- 0.90	0.188	N		
17	Company performance improved as a result of change.	41.0	50.5	39.5	N	48	3.21	1.10	1.32	0.192	N		

Safety

The results in Table 6.4 below indicate an increase of respondents who agreed less with the statements in questions 18 and 22 by a margin of 10.6 and 16.5 percentage points respectively. Furthermore, the 2003 survey indicates all respondents agreed or strongly agreed with questions 19, 20, and 21, but there is less agreement with question 18 and less than forty percent of respondents agreed or strongly agreed with question 22. Moreover, the ANOVA test indicates that the respondents with more than 10 years service agreed relatively more with the statement in question 20. The respondents within the operations department agreed relatively more with the statement in question 22 than did the respondents within the other departments.

Results from the staff survey indicated that the respondents recognised that their immediate boss gave priority to safety ($t(48) = -10.13$; $p < 0.05$). This indicates that plant managers inculcated safe working as a major part of plant culture, in line with the safety ethos of the company. Moreover, employees agreed or strongly agreed that they were not only responsible for their own safety but were also responsible for the safety of their colleagues ($t(48) = -15.72$; $p < 0.05$). Respondents with more than ten years service agreed more about the importance of colleague safety, indicating that the safety culture within the company and plant was in place before the changes discussed in this report, and had not lost any of its importance due to the change. Furthermore, less than 40% of the respondents agreed or strongly agreed there was a realistic balance between safety, cost, and production ($t(48) = 1.26$; $p > 0.05$).

Table: 6.4 SAFETY

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
18	The company is concerned for the safety of staff.	89.4	91.9	81.3	A	48	2.08	0.94	- 6.75	0.000	A		
19	My immediate boss gives priority to safety.	89.9	90.4	100.0	N	48	1.94	0.73	- 10.13	0.000	A		
20	I am responsible for the safety of my colleagues.	97.4	98.9	100.0	A	48	1.62	0.61	- 15.72	0.000	A	>10 yrs 0.016	
21	I am responsible for my own safety.	97.4	98.9	100.0	A	48	1.39	0.61	- 18.22	0.000	A		
22	I believe we have a realistic balance between safety, cost and units sent out.	57.2	54.1	37.5	D	48	3.21	1.15	1.26	0.107	N		Operations 0.024

Quality

Table 6.5 below indicates that question 24 has an increase of 14.8 percentage points of respondents who agreed more with the question in 2003 than they did in 1997. Furthermore, the respondents agreed less with the statement in question 26 by 23.2 percentage points. The results from the one-way ANOVA tests show that there were no significant differences between years of service and departments with any of the statements within this section of the 2003 questionnaire. Employees agreed that they were responsible for the quality of their own work ($t(48) = -17.77$; $p < 0.05$). Furthermore, employees agreed they were aware of the standards they should be working to ($t(48) = -5.20$; $p<0.05$) but who's standard were they operating too, their own standards or pride in doing a good job or company agreed standards. Results from the staff survey indicate that employees were unsure about the level of quality expected by the company ($t(48) = -3.72$; $p>0.05$). Moreover, the respondents were unsure that using their initiative to solve work problems would be welcomed or encouraged by the organisation ($t(48) = 0.89$; $p>0.05$). This uncertainty about the company's standards and problem solving/ continuous improvement at the individual level had an impact on the amount of job satisfaction each employee experienced within the power plant ($t(48) = -1.09$; $p>0.05$). Employees understood why their jobs were important in achieving team goals ($t(48) = -5.70$; $p < 0.05$) but felt that the company had not supported them in personal development initiatives that were related to business needs. Furthermore, employees did agree that they had sufficient freedom to carry out their job effectively ($t(48) = -3.02$; $p<0.05$). This would seem to contradict the discussion above about organisational expectations.

Table: 6.5 QUALITY

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
23	I am aware of the standards to which I should be working.	82.0	85.1	77.1	A	48	2.25	1.00	- 5.20	0.000	A		
24	I am responsible for the quality of my work.	97.2	81.0	95.8	A	48	1.71	0.50	- 17.77	0.000	A		
25	My immediate boss encourages me to do good quality work.	80.1	83.8	81.2	N	48	2.10	0.86	- 7.25	0.000	A		
26	Quality work is expected in the company.	90.8	85.7	62.5	D	48	2.40	1.12	- 3.72	1.00	N		

Performance Management

Data from the staff surveys (1995, 1997, and 2003) summarised in Table 6.6 below shows that question 31 has an increase of 13.6 percentage points of respondents who agreed or strongly agreed with the statement in 2003 than in 1997. Furthermore, questions 32, 33, 35, 36, and 37, have a decrease in percentage points of 40.3, 37.5, 23.7, 12.7, 12.6, respectively, of respondents who agreed or strongly agreed with the statement in 2003 than in 1997. Results from the one-way ANOVA tests show that the respondents within the maintenance department agreed relatively more with the statements in questions 34 and 35 than did the respondents from within the engineering and operations departments.

The results in Table 6.6 below also show that regular performance reviews had been carried out with objectives set against individual targets. Furthermore, the respondents agreed or strongly agreed that they had sufficient freedom to complete their work within agreed objectives and/or targets but the respondents disagreed that the company provided opportunities for personal development, and that the terms and conditions had been fair in comparison with other local companies. Results from the staff survey support the above perceptions where plant staff were uncertain that they were fairly rewarded for the work they did ($t(48) = 1.47$; $p > 0.05$). Moreover, maintenance staff agreed more than the other departments that they were fairly rewarded but the maintenance team were comparing their remuneration package with local engineering companies, where as the operations and engineering teams comparison was made against the oil industry and related companies.

Table 6.6 PERFORMANCE MANAGEMENT

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
27	My immediate boss has agreed with me what I have to achieve in my job.	59.0	69.0	75.0	N	48	2.23	0.90	- 5.90	0.000	A		
28	I understand why my job is important in the achievement of our team goals.	78.2	84.7	77.1	A	48	2.25	0.91	-5.70	0.000	A		
29	I have sufficient freedom to carry out my job effectively.	75.3	79.3	70.8	D	48	2.50	1.15	- 3.02	0.002	A		
30	I am normally involved in decisions affecting my work.	69.5	70.3	60.5	N	48	2.77	1.17	- 1.36	0.182	N		
31	My immediate boss reviews my performance regularly with me.	51.7	53.1	66.7	A	48	2.44	0.99	- 3.95	0.000	A		
32	My boss ensures I receive all the help, guidance and training I need to perform effectively.	56.4	56.3	43.7	D	48	3.10	1.24	0.58	0.282	N		
33	The company provides me with opportunities for self development in line with the needs of the business.	59.3	60.4	22.9	N	48	3.58	1.18	3.42	0.001	D		
34	I believe I am fairly rewarded for my work.	47.4	44.1	37.5	N	48	3.25	1.18	1.47	0.147	N		Maintenance 0.033
35	My overall terms and conditions are fair in comparison to other companies in my locality.	58.3	55.0	31.3	N	48	3.40	1.16	2.36	0.022	D		Maintenance 0.013
36	I get a lot of satisfaction from the job I do.	69.2	69.0	56.3	D	48	2.80	1.32	- 1.09	0.860	N		
37	Using my initiative is likely to be welcomed by the company.	79.2	81.9	41.6	N	48	3.15	1.15	0.89	0.376	N		

Leadership

Table 6.7 below shows that question 38 indicates a decrease of 20.1 percentage points of staff who agreed or strongly agreed with the statement in 2003 than they did in 1997. The respondents agreed or strongly agreed that their immediate boss encouraged them to learn from their mistakes. Moreover, the respondents were unsure that their boss had a positive view of the company's future. Results from the one-way ANOVA tests indicate that there are no significant differences between years of service and departments with any of the statements in this section of the 2003 questionnaire.

Communication

Results recorded in Table 6.8 below show that respondents in 2003 agreed less with the statements in questions 45 and 47 by 42.0 and 24.5 percentage points respectively, but they agreed more with the statement in question 46 by 33.2 percentage points. Although the respondents in 2003 agreed they had the opportunity to express their views and opinions and took part in regular team meetings, fewer agreed that the day to day communications between teams within the plant and company were good. Most of the respondents were unsure that they had been informed about company wide changes and that their boss had explained why decisions had been made. Furthermore, the respondents agreed they did not get the information to allow them to perform effectively in their jobs. Results from the one-way ANOVA tests indicate that there were no significant differences between years of service and departments with any of the statements in this section of the 2003 questionnaire.

Plant staff agreed or strongly agreed that they took part in regular team meetings ($t(48) = -11.05$; $p < 0.05$). They also agreed that they were given the opportunity to express their views and opinions ($t(48) = -3.86$; $p < 0.05$). However, they were unsure of whether they had received sufficient information about changes within the organisation ($t(48) = 0.00$; $p > 0.05$) and sufficient information to carry out their jobs effectively ($t(48) = 0.37$; $p > 0.05$).

The above results indicate that at plant level employees were involved in a two way candid communication process where they could question, discuss and agree the outcomes, but at the organisational level they thought the communication process was one way (top down), without the opportunity to discuss or seek understanding about the information and the impact it could have on their security, safety, and social well being.

Table 6.7 LEADERSHIP

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
38	Senior Managers are genuinely concerned for staff.	26.3	41.0	20.9	N	48	3.73	1.16	4.35	0.000	D		
39	My immediate boss asks what we can learn when things go wrong.	69.2	72.6	81.4	A	48	2.30	0.99	- 4.97	0.000	A		
40	My immediate boss gives a positive encouraging view of the future of our company.	46.0	53.4	45.8	A	48	2.96	0.99	- 0.92	0.386	N		

Table 6.8 COMMUNICATIONS

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
41	I am given the opportunity to express my views and opinions.	76.3	75.7	70.8	A	48	2.44	1.01	- 3.86	0.000	A		
42	I am kept informed about what changes are happening within the company.	45.9	45.5	52.1	D	48	3.00	1.13	0.00	1.00	N		
43	My immediate boss normally explains why a decision has been made.	67.7	57.7	60.4	A	48	2.75	1.16	- 1.15	0.071	N		
44	Day-to-day communication between work groups within the plant is good.	N/A	N/A	22.9	N	48	3.85	1.11	5.33	0.000	D		
45	Day-to-day communication between work groups within the company is good	38.1	54.5	12.5	N	48	4.00	1.05	6.59	0.000	D		
46	I take part in regular Agenda meetings.	80.8	62.6	95.8	A	48	1.92	0.68	- 11.05	0.000	A		
47	I receive sufficient information to allow me to do my job properly.	67.0	66.2	41.7	D	48	3.06	1.17	0.37	0.357	N		

Teamwork

Data summarised in Table 6.9 below show that the respondents agreed less in 2003 with the statement in question 51 by 14.6 percentage points when compared to 1997. Although respondents in 2003 agreed or strongly agreed that they felt part of an effective team, and that team work was important to the success of the organisation. However, they were undecided (neutral) about the effectiveness of their team now (2003) when compared to 2003 but disagreed that other teams supported them in achieving their team targets and objectives. Results from the one-way ANOVA tests indicate that there were no significant differences between years of service and departments with any of the statements in this section of the questionnaire. Moreover, the respondents

agreed or strongly agreed that effective teamwork was important in ensuring future company success ($t(48) = -13.42$; $p < 0.05$). When asked about their own teams they agreed or strongly agreed that they had been part of an effective team ($t(48) = -3.64$; $p < 0.05$). Moreover, when asked if their teams were more effective than a year ago the respondents were unsure of the answer ($t(48) = 1.73$; $p > 0.05$). The fact that the respondents were unsure about their teams' effectiveness could be attributed to the lack of support and communication from other teams within the plant and the organisation ($t(48) = 3.17$; $p < 0.05$).

Table 6.9 TEAM WORKING

Survey Results						One Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
48	I believe effective teamwork is important to the future of the company.	96.9	91.0	95.8	A	48	1.65	0.70	- 13.42	0.000	A		
49	I feel part of an effective team.	60.3	67.0	73.0	A	48	2.46	1.03	- 3.64	0.000	A		
50	My team is more effective than it was 12 months ago.	46.1	44.1	35.5	N	48	3.29	1.17	1.73	0.090	N		
51	Our team receives good support from other teams for the work we do.	38.2	45.9	31.3	N	48	3.54	1.18	3.17	0.003	D		

General

Data recorded in Table 6.10 below show that the respondents in 2003 agreed or strongly agreed that there had been improvement to performance in terms of financial and safety indicators. The respondents were undecided that there had been any improvement in respect to operational, environmental, and technical initiatives. Moreover, the respondents were unsure that any improvements in company performance had been a direct result of change. The one-way ANOVA tests indicate that there were no significant differences between years of service and departments within any of the statements in this part of the questionnaire.

Table: 6.10 GENERAL

Survey Results						One- Sample t Test						1 Way ANOVA Test	
Q	Statement	1995	1997	2003	A'Priori'	N	Mean	Std	T	P	Outcome	Yrs	Dept
52	I believe there has been improvement in company performance in the following areas.												
52E	Environmental	N/A	N/A	77.1	D	48	2.38	0.96	- 4.51	1.00	N		
52T	Technological	N/A	N/A	52.1	N	48	2.94	1.16	- 0.37	0.71	N		
52O	Operational	N/A	N/A	37.5	N	48	3.21	1.20	1.20	0.24	N		
52F	Financial	N/A	N/A	68.7	A	48	2.63	1.08	- 2.40	0.01	A		
52S	Safety	N/A	N/A	66.7	A	48	2.40	1.21	- 3.44	0.001	A		
53	I believe that any improvements in performance are as a result of change	N/A	N/A	43.8	A	48	3.08	1.15	0.50	0.692	N		

Multivariate Data Analysis: Factor Analysis

The complex data generated from the staff survey were subjected to 'Factor Analysis'. This technique was chosen for its ability to simplify data into factors which reflect the correlation of the variables (survey questions) with the factor (survey sections). The rest of this section presents the results from the data analysis which resulted in identifying the factor correlations from the 2003 survey data.

Factor Loading

The loading of each factor represents the proportion of variance (eigenvalue) contained in each factor. Moreover, the only factors with an eigenvalue of greater than 1 were included in the analysis (Kaiser Criterion). As an illustrative example, only variables within the Change category are presented below in Table 6.11. Appendix 5 shows the total factor loadings within each survey category.

Table 6.11 Sorted Rotated Factor Loadings: CHANGE

Variable	Description	Factor 1	Factor 2
Q 14	Belief of being involved in change.	0.843	0.000
Q 12	Change was managed well.	0.738	0.000
Q 13	Boss presents change openly and honestly.	0.739	0.000
Q 15	Senior managers show concern for staff.	0.590	0.000
Q16	The pace of change is too fast.	0.000	0.904
Q 17	Company performance improved by change.	0.000	-0.645
Variance		2.4034	1.4758
% Var		0.401	0.246

The next section will describe these factor loadings in order to attach the appropriate identification to each factor.

Factor Identification

Factor 1 was labelled 'Managing Change' since the loadings which make up this factor were concerned with: staff being involved in changes that affected them; change being managed well and presented in an open and honest way; with senior managers being concerned for staff. Factor 2 was labelled 'Pace of Change' since the loading included in the first instance there was a belief that change was too fast and secondly, a belief that company performance would improve as a result of change. The negative loading in Factor 2 (16) indicates that company performance will influence the pace of change and vice versa. Table 6.12 below shows the identifications attributed to each of the survey categories.

Table 6.12 Factor Identifications

Factor	Survey Question Nos	Var %	Interpretation
D1	7, 10, 8, 11, 6, 1.	29.2	Corporate Confidence
D2	5,2.	13.5	Market Competition
D3	4, 3, 9.	13.4	Continuous Improvement
C1	14, 12, 13, 15.	40.1	Managing Change
C2	16, 17.	24.6	Pace of Change
S1	18, 19, 22.	39.4	Corporate Safety
S2	21, 20.	30.9	Collegial Safety
QA1	23, 26.	38.7	Corporate Standards
QA2	24, 25.	37.5	Personal Standards
PM1	37, 29, 30, 36, 32, 28.	27.2	Employee Motivators
PM2	35, 34.	16.7	Terms and Conditions
PM3	32, 31, 27.	16.7	Personal Objectives
L1	38, 40.	48.3	Management Support
L2	39.	34.2	No Blame Culture
CM1	47, 41, 45, 44, 42.	32.9	Informed Staff
CM2	44, 46, 43, 42.	28.3	Information Sharing
T1	50, 51, 49.	43.0	Team Effectiveness
T2	49, 48.	29.2	Team Membership
G1	52T, E, O, S.	35.1	Corporate Performance
G2	52F, 53, 52S.	30.6	Plant Performance

6.4 Findings from the Focus Groups

This section will detail the results in the first instance from the January 2003 plant wide focus groups and secondly the January 2003 structured interviews within the operations department. The results are presented in tabular form and supported with appropriate comments made by respondents attending each of the sessions.

Data were collected using a semi-structured interview sheet (Appendix 2) comprising of the following sub sections: company strategy, performance management, internal environment (culture), reward, and personal development. Each of these themes are summarised below.

6.4.1 Company Strategy

Data recorded during the discussions on company strategy are shown in Table 6.13 below.

Table 6.13 Company Strategy

Q	Question	Respondents Who Agreed	% of Population
1	Do you know what the future plans of the company are?	12	40
2	Do you know what the future plans for the Plant are?	9	30
3	Do you know how your Personal Performance contributes to the overall performance of the company	20	66

The respondents agreed that the company strategy, since the merger, was based on maximising group performance through the reduction of costs. Furthermore, they believed this strategy to be short sighted. In the short term it may maximise profits but

in the long term it lacked focus on investment. Moreover, Table 6.13 above shows that 40% of the respondents acknowledged that they had known something about the company's future plans whilst 30% of the respondents had known what the plants future plans were. However, 66% of the respondents knew how they personally contribute to the overall performance of the organisation.

6.4.2 Performance Management

Data recorded on Table 6.14 below shows the findings on performance management from the focus groups' discussions. Eighteen out of 30 respondents (60%) had received performance appraisal from their immediate boss within the previous twelve months, with 13 respondents being given the opportunity to discuss personal development plans at that session but only the development plans of six respondents were carried out.

Table 6.14 Performance Management

Q	Question	Respondents Who Agreed	% of Population
1	Have you received a Performance Appraisal this year?	18	60
2	Did you have the opportunity to discuss your personal development?	13	41
3	Did you highlight training needs for your job/role?	18	60
4	Were the action plans actioned as agreed at your review?	9	29

Furthermore, eight respondents were given the opportunity to discuss development programmes and career opportunities for the future as well as personal development

and training plans. The consensus of all groups when discussing this theme was that management lacked the commitment in applying the appraisal system. This point was summarised by some respondents as follows:

- *"Performance management appraisals are just given lip service to by the company"* (maintenance engineer).

- *"Performance appraisals are only of value to me if they deliver agreed actions are actioned not used as a propaganda exercise"* (senior operator).

- *"The only way the company will develop someone now is to avoid redundancy"* (operator).

- *"The support offered by the company is not relevant to the ~~personal~~ personal development of the individual but what management want with no recognition for the needs of employees"* (engineer).

6.4.3 Internal Environment (Company Culture)

Table 6.15 shows that 28 out of 30 respondents (93%) agreed that the culture of the company was a key influence to whether employees would remain committed to the company. Moreover, 24 of the respondents (80%) agreed that the company culture would influence them personally to remain committed to the organisation.

Table 6.15 Internal Environment (Company Culture)

Q	Question	Respondents Who Agreed	% of Population
1	**Do you think the internal environment of an organisation would influence employees to stay?**	**28**	**93**
2	**Would the internal environment influence you personally to remain with this organisation?**	**24**	**80**

When discussing the current culture within the organisation and to some degree the plant the following comments were made by the respondents to describe it:

- *"Fear culture – especially from head office"* (admin assistant).

- *"Empires being built within the organisation with no management impetus to prevent it happening"* (engineer).

- *"Senior management are content to accept the reduction of plant staff numbers but expect an increase in plant performance and efficiency"* (shift group leader).

6.4.4 Reward

The respondents were asked if there was, or should be, a link between rewards and recognition within the company. The respondents' replies are recorded in Table 6.16 below.

Table 6.16 Reward

Q	Question	Respondents Who Agreed	% of Population
1	**Do you think there should be a link between reward and recognition?**	**30**	**100**
2	**Does that link exist within this organisation?**	**3**	**10**

Table 6.16 above shows that 90% of the respondents agreed that there was no link between reward and recognition, but 100% of respondents agreed there should be a link between reward and recognition within the plant. The respondents agreed that the following indicators could form the basis of a system of rewarding staff, plant performance, operational responsibility, and individual performance. These points were supported by the following comments:

- *"Progression through the pay scales should be by technical qualifications, operational experience, and personal performance"* (engineer).

- *"The potential of the individual should be rewarded"* (operator).

- *"Links between reward and performance should be recognised by the company, this would go some way to improving staff retention and motivation"* (shift group leader).

- *"I have not had a pay review since joining the company 5 years ago"* (admin assistant).

6.4.5 Training and Development

The responses from the groups when discussing personal development are recorded in Table 6.17 below.

Table 6.17 Training and Development

Q	Question	Respondents Who Agreed	% of Population
1	**Is it important to you that the organisation is interested in your personal development?**	**26**	**86**
2	**Have you received training in the past year?**	**22**	**73**
3	**Did you think the training was effective?**	**12**	**40**

Table 6.17 shows that it was important to the respondents that the organisation was interested in their personal development, with 26 out of 30 respondents (86%) agreeing with the statement in question1 above. The following comments made by the respondents support this view.

- *"If the necessary training is not provided then people will lose interest"* (plant operator)

- *"Plant and technological changes have moved so fast in the last few years hence the importance of keeping abreast of the changes"* (maintenance engineer).

- *"Training and development is the only way to develop as an individual"* (plant engineer).

- *"Staff might as well forget about seeking any training and development since the company seems not to be interested in supporting staff development"* (engineer).

Furthermore, the four respondents who did not agree with the statement (two of whom were at management level) summarised their views as follows:

- *"Companies who say they are interested in developing their people are being politically correct, in real terms they are only interested in core functions which in our case is producing electricity in the most cost effective way"* (member of the management team).

- *"Training and development is only important if I want to stay with the company---- when I reach a plateau I'll move on"* (plant engineer).

- *"The power plant is not here to further the interests of individuals but is here to progress and improve the business performance"* (senior manager).

Table 6.17 above shows that 22 of the 30 respondents (73%) had received training within the previous year but 10 of the 22 respondents thought the training was ineffective and inappropriate for their job. During the discussion it became apparent that 18 respondents had highlighted training which would help them in their job but

only nine respondents of the eighteen have had their plans implemented by their manager. Moreover, all groups agreed that personal development was vital to the success of the company but in 2002 the training was neither focused on the work nor evaluated.

6.5 Findings from the Structured Interviews

Structured interviews were designed firstly to measure the respondents' attitude to change within the plant, and secondly to gauge the effect change has had on their working environment and conditions within the plant. Each session commenced with the researcher outlining the objectives for the session and asking the following question to each team to open up the discussion –"are you ***committed to*** or ***compliant with*** recent changes"?

In general the respondents felt that they were still committed to the operational needs of the plant but they were only compliant with respect to the organisation and senior management. The following quotes were made by some respondents to emphasise how they felt.

- *Money is not everything but a little respect and recognition by senior management for what we do would go a long way towards us having greater job satisfaction.* (Team Member)

- *The trend in the organisation is to increase responsibility for staff members and at the same time reduce the incremental salary scales within each job role.* (Senior Operator)

- *Recently I have questioned my commitment/dedication to the organisation due to the lack of feedback on my own performance plus the lack of direction within the operations department.* (Team Leader)

Table 6.18 below outlines the main themes discussed during each of the structured interview sessions. The clear cells within the Table indicate that the theme was neither raised nor discussed by the team(s). The shaded cells indicate that the theme was discussed and the darker the shading, the stronger the feeling of the respondents during the discussion of a particular theme. The following general points are worth noting:

- The support team's interest centred around two themes of reward and the centralisation which had taken place within the organisation following the merger.

- Work planning, training and development, and terms and conditions were discussed but did not generate strong feelings from any of the respondents.

- The theme of staffing levels generated some discussion which seemed to relate to shift patterns.

- Respondents in general focused on two main themes, that of rewards and shift patterns.

Table: 6.18 Structured Interview Discussion Themes

	TEAM DESIGNATION					
THEMES	**A**	**B**	**C**	**D**	**E**	**Support**
Rewards						
Training & Dev						
Work Planning						
Shift Patterns						
Terms & Cons						
Staffing Levels						
Centralisation						

It is the intention at this juncture to concentrate on the themes of rewards and shift patterns as comments made by respondents in the other topics were mainly in support of the findings from the staff survey and focus groups.

6.5.1 Rewards

Discussions centred on the following issues: pay scales, grading, promotion, and recruitment, each of which is outlined below.

Pay Scales: The respondents perceived that responsibility levels had increased over the previous two years with a subsequent drop in salary levels. The following statements made by the respondents support this view:

- *"The lack of a fair remuneration package reflects the esteem in which production technicians are held within the company"*(shift group leader).

- *"The company shows more commitment to shareholders with dividends up by 12% but staff received a wage rise of 3.5%. Who's doing the work to make the profits for the company"* (production operator).

- *"There is still an unacceptable differential in pay between staff on the same grades within the company"* (technician).

Grading: The respondents had previously agreed to a grading structure prior to new salary scales being set, leading to the perception that the salary scales did not reflect the responsibilities required for each grade within the operations department.

Promotion: The respondents felt that the organisation had failed to honour the existing staff agreement by restricting promoted posts to two incremental increases instead of four as per the agreement.

Recruitment: The respondents felt that the only avenue open to the organisation in recruiting new staff to the plant was to offer them a starting salary at the top of the incremental scale. Furthermore, in some instances new staff members were earning more than experienced operators who had five to ten years service. This situation was viewed by the respondents as a failure by senior management to recognise/reward service, loyalty, and experience. The following statements support this view:

- *"The directors of the company are not concerned with the manning levels and continue to reduce or amalgamate jobs at every opportunity".*

- *"If the management are not concerned with the lack of resources, why should we".*

- *"The only way staff can be attracted to work in the plant is by offering them top of the scale remuneration leading to wage differentials within the plant teams".*

6.5.2 Shift Patterns

During discussion of this theme the respondents raised two main areas of concern. First the shifts pattern and second the method and process employed to implement the new pattern, as explained below:

The shifts pattern: The respondent perceived the new shift pattern to be detrimental to their health and in some instances the main contributory factor in safety accidents.

The main concern with the new pattern revolved around the quick change over from night shift, which finishes on Thursday morning, and the start of the day shifts which commence on Saturday morning. Previous shift patterns had a built in five day rest between night shifts finishing and the day shift commencing. The following statements are examples of what the respondents said in this respect:

- *"One area of concern with the shift pattern is the completion of night shift on the Thursday morning and returning to dayshift the following day".*

- *"Relief cover for the Monday nightshift is dependant on volunteers from the day shift".*

- *"Current rota requires a quick change from nights to days and then 12hour days over the weekend".*

- *"The current rota involves working 30hours in two weeks then 138 hours in three weeks".*

- *"The current rota system is a poor deal for staff, management and the business because of the fast changeovers and difficulty in covering certain shifts".*

Implementation: There was unanimous agreement by the respondents that the new shift pattern had been imposed on them rather than being negotiated with them. Moreover, some respondents used the term 'bully tactics' when describing the process and method of implementation, as the following statements show:

- *"Staff put forward ideas for alternative shift patterns but were ignored and overruled by management. Staff felt there was a hidden agenda behind the implementation of the new shift pattern being imposed".*

- *"The recent introduction of the 12 hour shifts was to be on a voluntary basis but management introduced the threat of being messed about if staff chose not to volunteer".*

- *"Staff refusing to comply with the request of working 12 hour shifts would be deemed by the management as taking industrial action".*

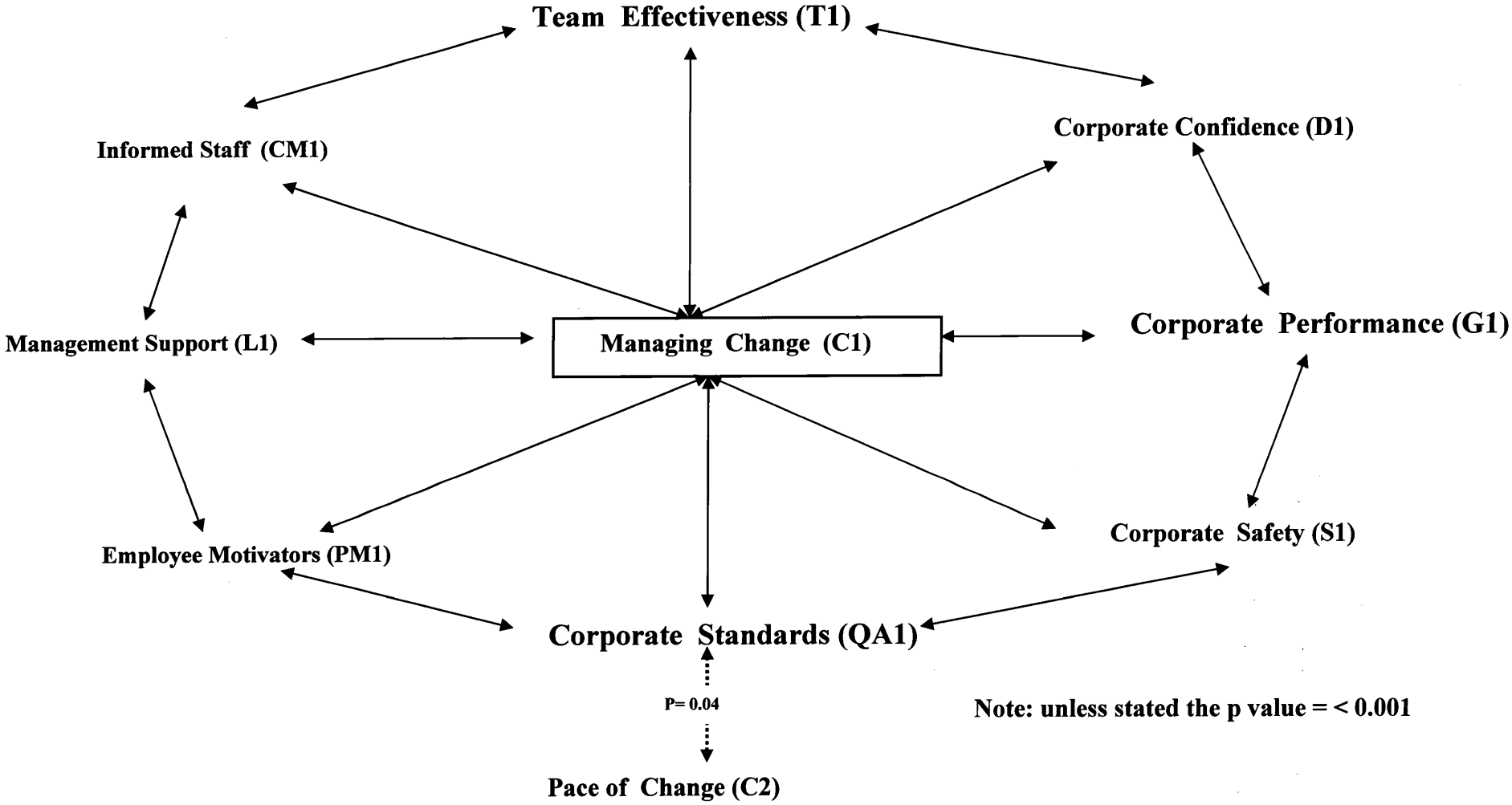
- *"Staff would like to be consulted as to the roster they work with the business needs being explained not just imposing a new roster".*

6.5 Factor Correlation

The Pearson correlation for each pair of factors was found to determine the degree of agreement between identified factors (Table 6.12). Moreover, the pairs of factors with a p value of less than 0.05 were selected for further analysis. Furthermore, factors with a p value of greater than 0.05 were excluded from the final analysis because any correlation is likely to have arisen by chance rather than certainty. Figure 6.3 below shows that there is a division of factors at the macro or corporate level, the first set of factors (company performance (G1), corporate confidence (D1), and corporate safety (S1), reflects the corporate factors which are important to the success of the organisation within the market place. The second set of factors [informed staff (CM1), management support (L1), employee motivators (PM1), team effectiveness (T1), and corporate standards (QA1)] represent the high level processes and procedures which need to be in place for the promotion and support of successful

change initiatives within the organisation. Moreover, Figure 6.3 indicates that the pace of change (C2) is a key link from the corporate level factors to the operational and procedural factors at plant level (Figure 6.4).

Figure 6.4 Macro and Micro Correlated Relationships



Operational and Procedural Relationships

Figure 6.5 below shows the factors which contribute to the success of the plant in the first instance thus contributing to the overall success of the organisation. The main functions which underpin the system are micro departmental level, individual level and supporting processes and procedures.

Micro/Departmental Level

Plant performance was dependant on the continuing change due to market competition and the ability of the organisation to match and out perform other companies in the market. Furthermore, the success of the plant was also dependant on the level of quality work delivered by the plant staff.

Individual Level

Personal standards were influenced by the regular setting of personal objectives relating to technical skill and knowledge, teaming responsibilities and support from local managers. Furthermore, the feeling of belonging to an effective team and accepting responsibility for the safety of colleagues is important in the motivation and commitment of the employees toward the organisation.

Supporting Procedures and Processes

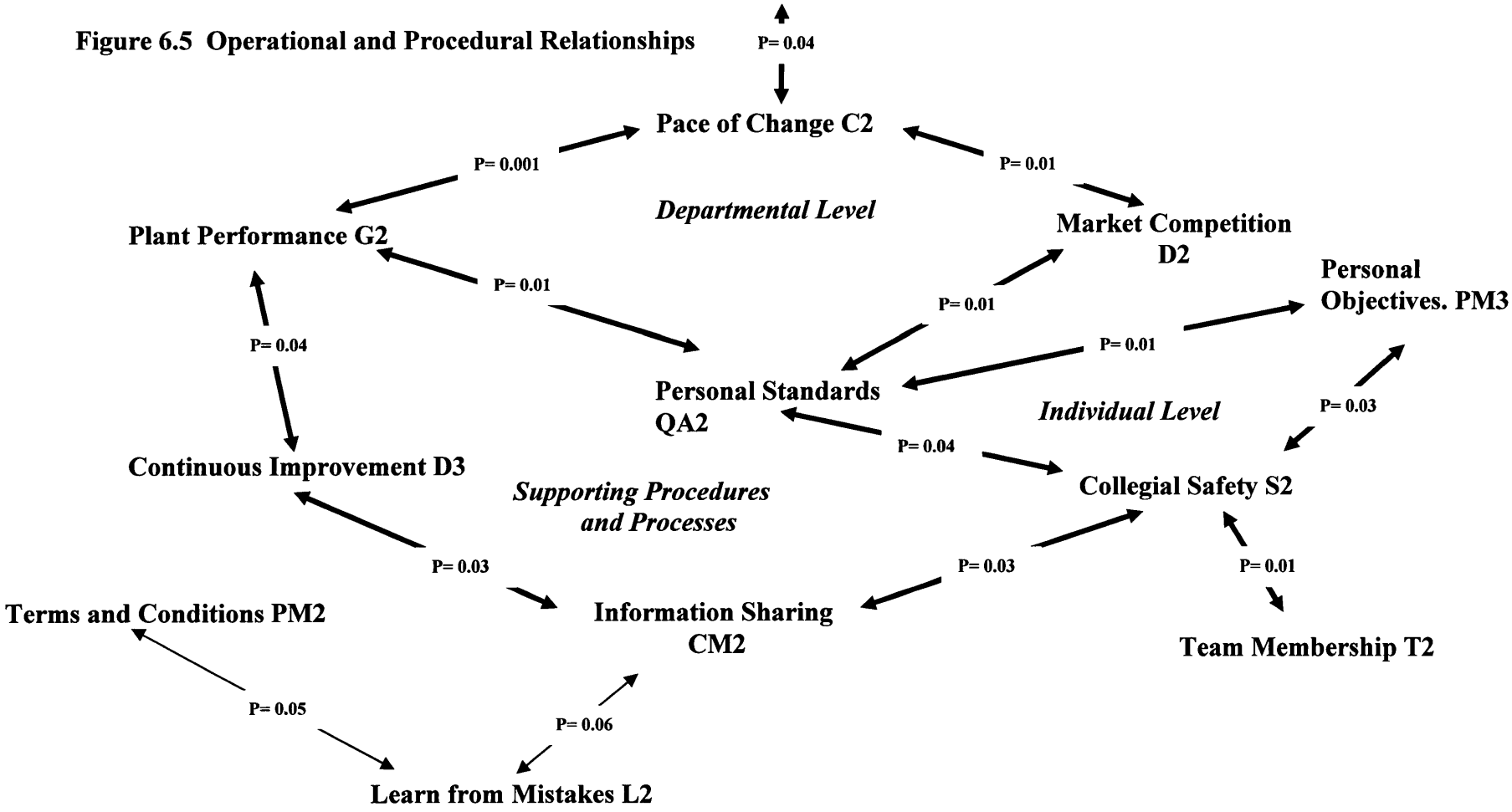
The section is important in making sure that the plant staff understand how and why their contribution toward the plant performance is critical in delivering organisational objectives. This is achieved through the sharing and discussion of pertinent information enabling performance to be improved through continuous training although this may lead to a change in their job role. The interesting aspect of this

section is the affiliation to the team and effective communications were more important to the employee than their terms and conditions.

The Pace of Change

The pace of change was driven from the top level of management within the organisation. Furthermore, results from this study show that change of any type does have a major impact and influence on the operational performance (G2), personal standards (QA2), and the way in which the organisation acts and interacts towards the competition within the market (D2).

Figure 6.5 Operational and Procedural Relationships



6.7 Conclusion

This chapter presented the findings of the study to determine the factors which influence the positive or negative reaction of employees towards change programmes and the extent to which organisational performance influences employees' commitment and motivation towards the organisation. The main findings from the study are recorded below under the following main headings: change, organisational performance, motivation and commitment.

Change

Table 6.19 below shows the approaches to change within the organisation. Construction of the model was based on experiences, responsibilities, and reflections of senior managers at plant and head office level. The model is based on Grundy's (1993) model of 'Types of major change' and is presented here to show the type of change experienced by the plant staff between 1999 and 2003.

Table 6.19 Approaches to Change within the Organisation

Change Initiative	**Approach to Change**	**Type of Change**	**Environmental Influence**
Privatisation	EMERGENT	Corporate Transformation	External
Repowering	PLANNED	Modular Transformation	Internal
The Merger	EMERGENT	Corporate Transformation	External

- The respondents recognised that the organisation would continually change due to external influences. They also believed that they had been informed about change within the company and that managers' presented change in a positive manner. However they thought that the rate (pace) of change within the organisation had been too fast.

- Plant staff had not been involved in the change process (top down approach rather than a bottom up approach). Hence the perception that the change process had not been well managed.

- The factor analysis correlated relationships matrix (Table 6.12) shows there was an interlinking and interdependent association of factors. Furthermore, if there was a change in one factor there would be a corresponding change brought about in the other factors, to a greater or lesser degree. Moreover, a point worthy of note in this respect is that factor C2 (the pace of change) acts as the link with QA1 (organisational standards) in the top level relationships and D2 (market competition) and G2 (plant performance) in the second level relationships.

Organisational Success

- The company's financial performance over the period 1999 to 2004 shows an increase of 35% in earnings per share and a 24% increase in operating profit over the same period. Moreover, the company's customer base increased by 40% from

3.3million customers in 1999 to 5.5 million customers in 2004. This increase was achieved against the industry norm of 38% customers switching energy suppliers.

- Staff acknowledged that the company was more successful than other companies within the electricity sector, but thought the success was due to more market competition than to any change programmes within the company. Moreover, plant staff members are unsure about their future employment with the company due to the lack of consistent direction and leadership from the executive, but accept that the company has a successful future through continuous improvement.

- The yearly remuneration package for senior executives and non executive board members rose by 44% from 1999 to 2002 but, staff felt that their reward system did not fairly represent the skills, knowledge, and responsibility levels required to operate a modern power generating plant.

Furthermore, plant staff lacked pride in working for the company which they saw as not acting with integrity towards staff members.

Motivation and Commitment

Personal performance was reviewed on a regular basis where performance targets were mutually agreed between the individual and his/her immediate boss, leading to a clearer understanding of the importance of their job/task in the achievement of team goals. Moreover, staff members had sufficient freedom to carry out their work as well as being involved at plant level in decisions which affected their job. Staff members believed that using their initiative to solve problems or make changes to working practices was neither welcomed nor encouraged by the organisation. Furthermore,

staff members were aware of the personal standards they should be working too but were unsure what the organisational standards were.

Team working was seen important in the achievement of the company's objectives and aims, but due to the conflicting performance and financial objectives set for the central service teams, plant teams were less effective.

The company embarked on a major programme of internal change in 1999 to enable it to move from a top down management style to a bottom up, and customer driven approach to management. Moreover, following the merger the management style adopted by senior managers was one of top down in pursuit of the new ethos of maximising group profits.

Staffing levels within the plant were progressively reduced between and during major operational and/or regime change initiatives. Moreover, twelve hour shift patterns were introduced into the operations department as a way of maintaining commercial competitiveness.

The next chapter will discuss and compare the above themes with relevant literature and perceived best practice pertaining to change management programmes.

Chapter Seven: Discussion

7.1 Introduction

The aim of this chapter is discuss the findings generated in chapter 6 by linking them to the political and socio-economic environments prevalent within the country. Furthermore, the theoretical concepts and models pertaining to change management, motivation and commitment are discussed in relation to this study's findings. The first part of this chapter will review and discuss the changing environment within the British political system from the early 1980s to the late 1990s and its effect on the electricity industry. In the second part, the change theories and processes the organisation adopted in response to the changes within the external environment are discussed. The third part is about the extent to which employee commitment and motivation towards the organisation was influenced by and related to company success. Finally, conclusions will be drawn, leading to the development of a working model for the successful introduction of change initiatives within organisations.

7.2 The Political and Socio-Economic Environment

The privatisation phenomenon of the 1980s was at the heart of the Thatcher government's monetarist policies, through the reduction of public sector borrowing requirements, lower public expenditure and the implementation of tax cuts. Furthermore, share ownership was encouraged and promoted, with employees encouraged to become share holders in their own and other newly privatised organisations. The Government realised that privatisation was the solution to many of

the country's economic problems and continued the privatisation process until 1997 when Labour came to power.

Moreover, another main benefit of privatisation to the government was that government ministers would no longer be held responsible for the poor service delivery and drain on the tax payers' contributions. Furthermore, the privatised industries could still be monitored through the introduction of effective regulatory measures, as detailed in chapter three. Any short comings within the industries could now be laid at management's door and not the Governments.

Ownership of the British electricity companies was transferred from public to private ownership in the late 1980s. During the early years of the privatisation process the main players within the market were able to exercise monopolistic control over the pricing within the energy market. The lack of any real competition within the market enabled the energy companies to profit through increased operating profits and earnings per share year on year. The results recorded in section 7.4 of this chapter support the above analysis.

In the pre-privatisation era trade unions within the public sector had been able to negotiate above inflation wage rises and good terms and conditions for their members. Moreover, the political affiliation of the trade unions to the Labour party was viewed by some as being detrimental to the efficiency and effectiveness of British industry. Trade unions were accused of encouraging the workforce to withdraw their labour in order, at times, to make a political point. The 'winter of discontent' is the best known example of trade unions flexing their political mussel within the public sector.

Privatisation acted as the catalyst for reducing the power of the trade unions within the previously state owned utilities. There is no doubt that employees' within the privatised industries have paid the price for this reduced power. Management were able to impose policies, practices and procedures into the organisation with minimum resistance from employees. This lack of resistance enabled a power shift within the organisation with power now resting within the board room, and not as previously with the shop floor. This power shift was enabled through the government's policy of marginalisation of the Trade Union movement's power in respect to their right to withdraw labour in support of better remuneration and terms and conditions for their members.

7.3 Theoretical Concepts

The findings from the research support Cole's (1995) theory that organisations depend on and interact with their internal and external environments. Furthermore, the results have proved Grundy's (1993) concept of change operating at three levels within the organisation; macro, micro, and individual levels. The macro level represents what Cole (1995) and Senior (1997) described as organisations operating in multi-dimensional environments and their response to change within these environments. Change at the micro level can best be described as Emergent Change with the focus on organisational culture and structure. Results from this case study leads one to conclude that the prevailing culture within the organisation following the merger with company 'B' was similar to Handy's (1993) power culture where the focus was on the success of the organisation, but where employees tended to be expendable in the achievement of the organisational goals (maximising group profits).

Moreover, the research results have revealed that the changes within the organisation were set in place to support and reinforce the achievement of the above organisational goal of maximising company profits. Furthermore, the results agree with Senior (1997) that work roles, task and responsibilities and a framework for order and command were defined through the new structure, but the results have shown that in respect to channels of communication in the first instance within the organisation ($t(48) = 6.59$; $p < 0.05$) and secondly within the plant ($t(48) = 5.33$; $p < 0.05$) were not well managed during the change process. Similarly the management of relationships ($t(48) = 3.17$; $p < 0.05$) within the organisation was given little credence by senior management. This was apparent through the setting of financial targets for each team without cognisance given to the effect achievement of these targets would have on the other teams within the organisation, this topic will be discussed in more detail as part of the next sub section.

This case study research has shown that within any change programme there is no one right approach to change but within a major externally induced change programme there requires to be different approaches to change at different levels within the organisation (micro, macro, and individual). Moreover, the findings suggest that the situational or contingency approach to change does not always move beyond the limitations of the mechanistic and rational perspectives of organisations, and into the reality of organisational life (Burnes, 2000; Nelson and Dowling, 1998; and Senior 1997). The reality in this case study was that the organisation did not have the opportunity or luxury of choosing when, what and how change would be introduced and managed within the organisation.

Moreover, this case study has demonstrated that when faced with two major externally induced changes brought about by the political and socio-economic environment of the time, the choice was not available to the organisation but in each change initiative a form of planned change did occur at the individual level within the organisation and in particular at the power plant. Moreover, plant staff perceived that the change was not well managed due to the lack of concern shown by senior management for the well being of staff members during change ($t(48) = 10.10$; $p<0.05$).

7.4 Theoretical Framework from the Staff Survey and Interviews

In this section the study results are discussed in relation to relevant literature and research pertaining to managing change, employee motivation and commitment. The main findings identified in the previous chapter were: company performance, employee rewards, employee terms and conditions, organisational culture and leadership styles, each of which is discussed below.

7.4.1 Company Performance

The organisation's performance over the period 1999 to 2004 realised an increase of 35% in earnings per share and an increase of 24% in operating profit over the same period. Customer satisfaction measurement identified that the customer base had increased by 40% in the same period. This increase was achieved against the industry norm of 38% of customers switching away from their energy suppliers. Results from the staff survey and interviews show that staff agreed and acknowledged that the organisation was more successful than its competitors.

Clearly the strong financial, customer service and service delivery (keeping the lights on) indicates how successful the organisation was within the British energy market. Moreover, employees looked to the organisation to provide them with security of employment, future job prospects, rewards, recognition, and affiliation, physical and psychological safety within the work place.

7.4.2 Employee Rewards

Results from the focus groups and structured interviews have shown that there was no direct link between individual performance and rewards and recognition. The respondents thought that the salary scales did not reflect the skills, knowledge, and responsibility required to operate a modern power generating plant. Moreover, the remuneration packages of the CEO and fellow board members rose by 44% between the periods 1999 to 2002. Employees perceived there was inequality in the organisations reward system when comparing their rewards for their efforts with the rewards attained by the senior management, customers, and shareholders.

The indications from the literature and research are that in such cases employees are prone to reducing the quantity and quality of their output (Schermerhorn, 2004). For example, research undertaken by Herzberg (1959) identified that reward (salary) was one of the factors which when missing or minimised would influence the individuals dissatisfaction with the organisation. Moreover, research undertaken by Stum (2001) found that the level of employees commitment towards the organisation was conditional on a fair reward system being in place. Results from this case study

identified that employees did not have pride in working for the organisation (t (48) = 0.52; p =>0.05).

7.4.3 Employee Terms and Conditions

Staffing levels within the power plant were systematically reduced as a result of each change initiative. Figure 6.3 indicates that a shortfall of twenty staff between the official staffing level and the operational staffing level for the plant. In an attempt to maintain a competitive edge, senior management introduced a twelve hour shift pattern into the operations department. Moreover, senior management applied pressure to operation staff to accept the new shift pattern. Failure to agree was seen as taking individual industrial action. This supports Mullins (2002) view on the changing nature of organisations and individuals suggesting that a new psychological contract needs to be applied to industrial relations. The old psychological contract of masters and servants is no longer acceptable to the majority of employees. Human resources should no longer be seen as an asset to be used, people should be seen as a responsibility and a resource to be added to. Clearly the strategy adopted by senior management in this case study falls far short of the above theoretical concept.

The results have shown that in the period 1998 to 2000, the Director of Human Resources was removed as a member of the board of directors. The post of HR director was re-designated as Personnel Manager reporting directly to the CEO who had the final say on staffing levels and recruitment policy. The removal of the HR director from the board of directors was a clear indication of the importance senior management placed on 'people issues' within the organisation.

The resulting effect at plant level of this executive decision was to witness the demise of the communication initiatives (learning flowcharts and making it happen videos) something the employees had requested following the 1995 staff survey. Furthermore, the performance management scheme reverted to a "tick in the box" exercise rather than an opportunity for employees to discus with their line manager their job role, performance and future development within the power plant and organisation. Moreover, plant employees perceived there was a lack of direction and leadership from the executive ($t(48) = 3.92$; $p < 0.05$).

7.4.4 Organisational Culture and Leadership Style

This study found that the organisation experienced a cyclical effect regarding the dominant culture within the organisation. The changing dominant cultures within the organisation are discussed below:

1. Pre-privatisation (1989) - the dominant culture within the organisation was bureaucratic in nature with particular emphasis on rules and procedures. Efficiency in the "role culture" depended on the allocation of work and responsibility rather than on the individual (Handy, 1995).

2. Post Privatisation and Pre Merger (1990 to1998) - the dominant culture changed to the "task culture" where employees had a certain amount of autonomy within their work place. However, during the merger the main criticism levelled at the task culture was the inability to achieve economies of scale or depth of expertise (Handy, 1993).

3. Post Merger (1999) – Due to the expansion and competition within the energy market the dominant culture became an amalgam of the power culture and role culture focussing on the success of the organisation, but employees were expendable in the achievement of organisational goals. Moreover, under this culture employees were judged on their performance. The working environment within the power plant at times could be described as turbulent and exasperating, resulting in employees experiencing low morale and dissatisfaction with their job ($t(48) = -1.09; p > 0.05$) leading to an increase in staff turnover (Mullins, 2002).

Leadership style within the organisation changed to compliment the changes in the organisational culture. Pre- privatisation leadership style was authoritarian moving to a more democratic/coaching style post privatisation. Following the merger the leadership style reverted to authoritarian with power and command from the top down rather than the bottom up approach pre merger.

7.5 Towards the Development of a Theoretical Model

Taken together, the findings of this thesis lead to the following conclusions.

The company was successful when compared to other companies within the electricity industry with earnings per share up 35% and operating profits up 24% over a five year period (1999-2004). Moreover, the merger with company 'B' was successful in financial terms with plant employees agreeing with and accepting the organisation needed to continually change in order to grow and survive within the competitive

market place, but employees were unsure about their future employment with the company.

During and following the merger the dominant culture within the organisation was congruent with Handy's (1993) power culture with the focus on the success of organisational performance, shareholders, and customers to the neglect or detriment of the staff. Furthermore, centralisation caused a division of effort within the organisation. Senior management were perceived to be focusing on their own agenda of good company performance equating to better and more lucrative remuneration package for themselves.

Plant employees experienced a negative change to their working conditions, reward systems, job security and their relationships with colleagues and managers (Hertzberg's Hygiene factors), but shareholders, customers and senior managers experienced a positive change as a direct result of the organisations success within the market place (Vroom's expectancy theory). Moreover, due to the divisiveness of the executives strategy of setting cost reducing targets for central support teams, plant managers were marginalised in the action they could take in support of plant employees, a situation the employees were well aware of leading to some hostility towards the organisation all be it a tacit one (Herzberg's motivational factors).

Organisations are dependant on and interact with their external and internal environment (Cole, 1995). Moreover, change takes place at the macro (organisational), micro (departmental), and individual (procedural) level within the

organisation (Grundy, 1993). Furthermore, more than one culture type can be in play at different levels within the organisation at any one time during the change process (Mullins, 2002; Hatch, 1997).

The decision making process adopted at each level (macro, micro, and individual) within the organisation is critical to the effectiveness and efficiency of the proposed pragmatic model (Figure 7.1). Moreover, each level requires managing and administering by the appropriate designated leadership level. Furthermore, control and implementation of the change process should be applied through the setting of 'SMART' objectives linked to strategic Key Performance Indicators (KPI's). Senior management will be responsible for developing, agreeing and communicating the KPI's within the organisation. Each head of department will be responsible for the development of departmental goals and objectives. Supervisors will be responsible for the dissemination of departmental goals and objectives to staff members by discussing and agreeing individual 'SMART' objectives.
Establishing clear, defined objectives within a structured appraisal system will enable management to give constructive feedback and recognition of a job well done. Furthermore, the system will enable management to create standards across the whole organisation, identify business improvements and help staff feel involved and valued for their contribution to the business performance.

A synthesis of the above findings is proposed in terms of a working model for change within organisations. This model constitutes a schematic representation of these factors and how they relate to one another. In presenting this model the following features are worth drawing attention to in terms of their influence on its design.

- There is no one preferred culture within the organisation, but at any one time there are several cultures operating at different levels within the organisation.

- Internally controlled employees are generally more satisfied with their jobs.

- Internally controlled employees are more satisfied with a participatory management style.

- Internally controlled managers are good performers, and more considerate of subordinates, whilst following a strategic style of executive action.

- Individuals with a high achievement motivation perceive that successful performance is achieved through their own intrinsic forces (ability, skills) rather than by the nature of the task or good luck.

Figure 7.1 below attempts to conceptualise the correlated relationships developed from the analysis of this study's research data. The model identifies the main areas which need to be managed at the corporate and departmental levels within the organisation, as detailed below:

Corporate Level

This level will determine the what, when, and why for the change initiative(s). It is the responsibility of the executive and senior managers to communicate clearly the reasons why change is necessary. The preferred culture at this level is an amalgam of the power and role cultures with an authoritarian style of leadership. Moreover, at

this level the executive have a responsibility for setting the organisational standards necessary (financial, technological excellence, safety, and delivery of product) to take the organisation forward through a culture of continued improvement, and at the same time delivering customer and shareholder satisfaction. Furthermore, the pace of the change will be influenced by the type and source of the change. Is it planned or emergent change and is it influenced from within the organisation or external to the organisation?

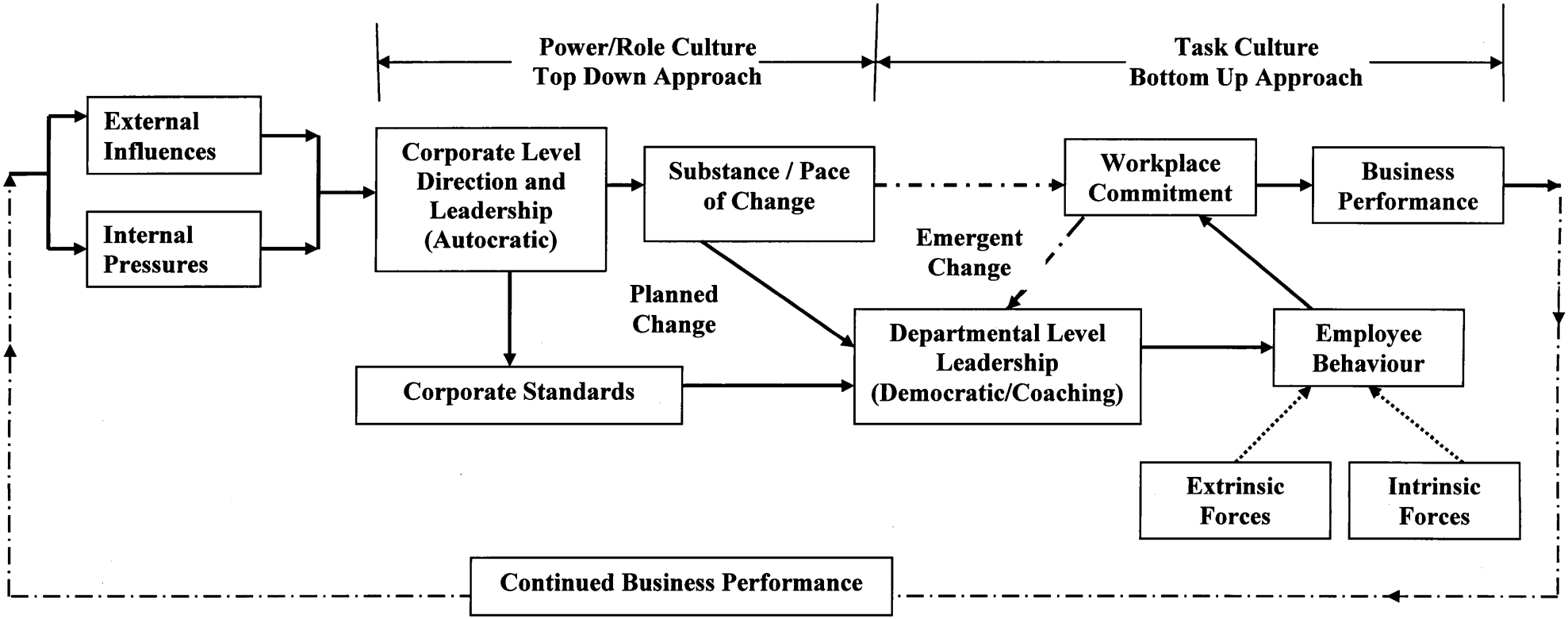
The Departmental Level

The department managers and supervisors will be responsible for determining how the change will be introduced and who will be involved in its implementation. In such circumstances where the change needs to be implemented over a short timescale departmental management will facilitate, at a suitable time within the change cycle, the transition from existing departmental policies, procedures and practices to the new state within the department. Furthermore, the departmental managers and supervisors will be responsible for ensuring the involvement of employees in the change at the individual level. To enable the involvement of employees in the change process a task culture supported with a democratic and/or coaching leadership style will be required.

7.6 Conclusions

After this chapter that has discussed the findings in relation to some relevant literature and has resulted in the development of a theoretical model for change management, the next chapter will summarise the main issues covered in this research and then reconsider the research aims and objectives in order to establish the extent to which they have been met.

Figure 7.1 Working Model for Managing Change within the Organisation



Chapter Eight: Conclusion

8.1 Summary

This empirical study sought to assess the effects of organisational change within a major power generating plant. Over a twelve-year period, from 1990 to 2002, the plant experienced three major change programmes, each having an impact on organisational performance, as well as policies, procedures, new work tasks and relationships being introduced within the plant. Each of these changes had implications for employees' workload and subsequent stress levels, resulting in a knock on effect to their motivation and commitment towards the organisation.

The privatisation phenomenon of the 1980s and 1990s has proven to be socially and financially successful by the Government and the newly appointed board members of the privatised organisations. In the pre-privatisation, the nationalised industries operated in a monopolistic market, automatically receiving government subsidies to cover any negative variances in their yearly budget. One would argue that there was no real threat of bankruptcy and consequentially major job losses, leading the public sector employees to believe that jobs were safe and protected from the rigours of market forces. Moreover, industrial relations within the sector were poor, resulting in outdated policies, procedures and practises being protected. Public sector industries were over manned and under achieving in terms of effectiveness and efficiency. In other words they were a total drain on state funds and tax payers' contributions.

In the post privatisation, management were responsible for determining and implementing long term business strategies based on market forces, customer loyalty and the cost of borrowing capital on the money markets. Staffing levels and above wage settlements now reflected the demand within the market place for the service supplied to customer and investors of the organisation.

Plant staff recognised that the organisation would continually change due to external influences. They also believed that they were informed about change within the company and that managers presented change in a positive manner. However they acknowledged that the rate (pace) of change within the organisation had been too fast.

Moreover, plant staff agreed that effective team working was essential to the future success of the organisation they also considered themselves to be part of an effective team. Furthermore, the decision by the executive to integrate core functions in an effort to maximise group profits created divisions between central service functions and the operational plant teams.

Finally, this study has also shown that there was more than one culture operating within the organisation over the timescale of the study. The 'preferred' culture at the executive (macro) level was a mixture of the power and role cultures. The focus of this type of culture is one where the success of the organisation is paramount with employees being expendable. Moreover, the culture tends to be overly bureaucratic in nature, with particular emphasis on rules and procedures.

However, the 'culture-in-use' (Mullins, 2002) at the departmental and plant (micro and individual) level(s) was that of a task culture which is the type of culture where

reliance is placed in the expertise of employees with individual employees having autonomy, enabling a fast response to change within the external and internal environments.

8.2 Reconsideration of the Research Objectives and Aims

The main aim of this study was to assess the effects of the change programmes on employees' commitment and motivation over a twelve year period (1990 – 2002) in order to determine:

- The factors that influence the positive or negative reaction of employees towards change programmes.

- The extent to which organisational performance influences employees' commitment and motivation to their employer.

In order that the above research objectives could be met the following research questions had to be answered:

- Why do employees resist change programmes?

- To what extent is employee commitment and motivation influenced by and related to company performance?

These objectives were met through the collection of employee responses to questions in the form of the staff survey and focused interviews in relation to the above

objectives. The responses were statistically analysed in order to ascertain the level of agreement against each objective. This research took steps to better understand the relationships between employee's motivation and commitment towards a successful organisation. Results from this study indicate that employee commitment is dependent on the following factors being evident within the workplace:

1. Having the feeling of belonging to the team and being involved in decisions affecting their job.

2. Having a feeling of satisfaction with a job done well and pride in working for the organisation.

3. Having confidence in the competence of senior management to direct and lead the organisation within the marketplace (Mullins, 2002).

8.3 Contribution of the Study to Knowledge

This case study has contributed to knowledge at two levels – theoretical and practical, as explained below:

Theoretical level

1. To the best of my knowledge this study is the first study of change management in a power plant that has looked at the post privatisation in the energy sector.

2. The study proposes a theoretical model of managing change.

3. Figure 7.1 was developed as a working model to assist academics and practitioners to better understand the processes that need to be in place to minimise the employee's resistance to change. Furthermore, key to the process is the culture and leadership style at each stage of the change process.

4. The findings from this study support the concepts that:

- Employee commitment and motivation should be seen as a single entity and not as separate disciplines (Stum, 2001; Meyers and Herscovitch, 2001).

- Organisations are dependant on and interact with their external and internal environment (Cole, 1995).

- Change takes place at the macro, micro, and individual levels within the organisation (Grundy, 1993).

- More than one culture type can be in play at different levels within the organisation at any one time (Mullins, 2002; Hatch, 1997).

Practical level

The factor analysis correlated relationships matrix (Figures 6.4 and 6.5) shows there is an interlinking and interdependent association of factors at three levels within the organisation (macro, micro, individual). Each level needs to be managed and administered by the appropriate level of management and supervision. Furthermore,

the study has identified that if there is a change in one factor at the macro level there will be a corresponding change brought about in the other factors, to a greater or lesser degree at that level and the micro and individual levels. Moreover, an awareness of this interlinking and interdependence of factors will assist both senior and line managers to better manage change within their organisations by reducing employee's resistance to change, thus increasing their commitment towards the organisation as well as maintaining or increasing their motivation levels

8.4 The Limitations of the Study

This research like most case studies has some limitations. These limitations may restrict the generalisation of the research findings as follows:

- The study was conducted within one power plant. The findings are specific to the factors which influenced employee's commitment and motivation towards the organisation during change within the power plant. Generalisation of the findings may be useful as general indicators of employee behaviour within other industries. Moreover, consideration needs to be given to the socio-economic, political and cultural context in which the study was conducted.

- The study was conducted over a period of major political, economic and organisational change. Results from a similar study conducted in less turbulent times may deliver a different set of conclusions.

- The sample size for the staff survey was small because the study was concentrated within a power plant and not across the organisation.

- Questions for the focus group and structured interviews were constructed prior to the results from the staff survey being analysed due to the time constraints placed on the researcher. This could have yielded invaluable information on the employee's attitude toward the organisation's values rather than just an understanding of what they were. Furthermore, perhaps more information about the employee's perception on the differing leadership styles within the organisation would have been useful in determining why they perceived that line managers were more interested in their well being compared with senior managers within the organisation.

8.5 Proposals for Future Research

In light of the limitations identified in the previous section the following proposals are suggested for future research:

1. In today's' turbulent political and economic environment, change is now a major part of organisational life. There is a need to investigate the influence and effect the external environment has on the culture and leadership styles adopted within the organisation.

2. Future research should be carried out to determine if one preferred culture should be applied across the whole organisation, or can 'Orthogonal'

cultures (Hatch, 1997) support and encourage the commitment of employees in the achievement of organisational aims and objectives.

3. Future research should be undertaken to determine at what level within the organisation company success ceases to be a lower level need. Furthermore, the research should determine the influence demographics and industry sector have on the results.

4. The study was undertaken within a thermal power plant which was exposed to the rigours and competitiveness of the oil and gas markets. A study could have been conducted within one of the hydro generating plants, in order to draw a comparison of the socio and economic pressures, and their effects on the commitment and motivation of staff working within the hydro plant.

5. Further research needs to be carried out to determine if the results from this study can be mapped across other service sectors.

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Appendix 1

A Brief Appraisal of the UK Electricity Industry (1990-2002)

Introduction

Over recent years, the electricity industry in the United Kingdom has undergone two radical changes: the privatisation of almost all the electricity companies and the introduction of competition. The change of ownership in itself has had a major impact on an industry which spent 40 years in the public sector. More significantly, the entire industry has been fundamentally restructured. This was done with a number of objectives in mind, namely

- the creation of a competitive electricity market;
- financial independence from Government;
- wider share ownership and
- greater involvement for employees in the future success of the companies they work for.

To facilitate competition it was fundamental that there was a separation of the monopoly elements of the business (transmission and distribution), from those elements which would be subject to competition (generation and supply).

The rest of this paper will review the privatisation of the Electricity Industry and its effects on the Generation business within the industry; firstly by reviewing the

changes as introduced on a national basis (Part1) and secondly by reviewing the changes within the Scottish generation business(Part 2).

Part 1

The New Generation Business

There are several key features to the new system. First, power is traded through an open commodity market, the Pool, which will be described later. Second, the generators no longer have any obligation to supply, or any assured market. They have to compete for their share of an increasingly competitive market.
Competition has changed the emphasis in the way the generation business is managed. Although in the past the whole of the industry made a profit (for its owner, the Government) and had an excellent record in fulfilling its statutory duty to 'keep the lights on', it was engineering-led rather than customer-led, and tariffs were established on a cost-plus basis.

New Plant

Both for existing and new generators, gas has become the preferred fuel for new power generation plant in the UK, for a number of reasons. In comparison with coal-fired stations, new combined cycle gas turbines (CCGTs) involve low capital cost. Their short construction times allow for greater flexibility in deciding when to build new stations, and their modular design makes them ideal for turnkey contracts which

place full responsibility on plant and equipment suppliers. CCGTs are particularly attractive as they also offer major environmental advantages.

In comparison with coal-fired plant, CCGTs consume 27% less fuel, emit 58% less carbon dioxide and 80% less nitrogen oxides for each unit of electricity generated. Moreover, they emit no sulphur dioxide, and thus represent one of the best ways of tackling environmental problems such as acid rain and global warming. By 31 March 1996, 9,505 MW of new CCGT plant had been commissioned in England and Wales and a further 15,000 MW was either under construction or planned. Of this capacity, new entrants have commissioned 6,000 MW of plant and a further 2,900 MW is under construction. In total, there are some 20 independent power schemes in prospect, some of which are still in the planning stage.

Given that UK electricity demand is forecast to rise only slowly (by around 1% per year over the next decade) this represents a serious challenge to the existing generators. By the year 2000 new entrants, who already account for nearly 14% of the generation market in England and Wales, could capture up to 20%.Nuclear Electric's Sizewell B station was completed in September 1994 and is designed to supply 1,188 MW of power. Electricity was first sent out to the grid in February 1995, and after one year of commercial electricity production, 7.9 billion units of electricity had been supplied - more than 3% of total demand in England and Wales.

The Electricity Pool and The Competitive Market

All the major generating companies are required to sell the electricity they produce into an open commodity market known as the Pool. The Pool is a simple name for what is, in effect, a very complex trading mechanism. The Pool was set up in about a year, but there has been continuous evolution and development.

Essentially, each generating unit has to declare by 10 am each day its availability to the market, together with the price at which it is prepared to generate, for each and every half hour of the following day. The units are then called to generate by the NGC in ascending order of price. The most expensive unit used establishes the system marginal energy price which all others receive for that half hour. There is an additional separate pricing mechanism designed to provide an incentive for the provision of generating capacity.

This form of virtual real-time pricing inevitably tends to produce volatility in prices and this is not necessarily welcomed by either buyers or sellers. To overcome this, the Pool has been overlaid with both short and long term contracts to make capacity and energy prices more predictable for both customers and generators. These so-called Contracts for Differences (CfDs) typically involve an agreed 'strike price' (an agreed price per kWh) for a specified quantity of electricity and a specified period of time. If the Pool price for electricity is below the agreed strike price for any half hour, the supplier will pay the generator the difference between the two prices. Similarly, if the strike price is below the Pool price, the generator will pay the difference to the

supplier. CfDs are essentially financial instruments, the main purpose of which is to hedge risk. About 90% of the electricity sold by the major generating companies is covered by contracts, both with the RECs and with individual large customers. Only around 10% of electricity sold is paid for at Pool prices.

Reducing Costs

The market has had an effect on all those who sell into it. As electricity cannot be differentiated by source or quality, the challenge is to be the least cost producer. All the generating companies have implemented a range of measures to reduce costs and have diversified fuel sources and the range of fuels used. This means burning gas in new, more efficient CCGT plant, and securing supplies of gas by contracting for independent gas production or joining with others in exploration. Companies are seeking to buy coal at world prices, whether from the UK or overseas, taking advantage of low sulphur coal. These measures have already led to major reductions in fuel costs.

In addition to tackling fuel costs, the CEGB's successor companies are reducing overheads. National Power and PowerGen inherited 17,000 and 10,000 staff respectively from the CEGB. Staffing levels had fallen to 4,727 in National Power and 4,148 in PowerGen by March 1996. Throughout the industry, reductions in manpower have helped to achieve impressive performance improvements. In all companies, staff training is being increased, and maximum flexibility is being encouraged.

The intensive drive to reduce operating costs shows what can be achieved when management is faced with the pressures of surviving in a competitive market. Availability of plant is being improved because the Pool only pays when plant is available. Both National Power and PowerGen's best 2,000 MW of coal-fired plant now has an availability of about 95 per cent. Improvements in thermal efficiency are being sought, so that progressively higher output can be achieved. This saves money and helps the environment. In addition, about 11,000 MW of the least efficient plant has now been closed and a further 6,000 MW has been placed into reserve by the major generating companies.

The Non Fossil Fuel Obligation

Mention should be made of the special arrangements made by the Government for nuclear decommissioning and renewable generation. At the time of privatisation of the electricity supply industry, the high cost of electricity produced by both nuclear and non-nuclear renewable sources was acknowledged. In order to guarantee a market for nuclear-generated electricity, the Secretary of State made an Order obliging the 12 RECs to buy specified amounts of nuclear-generated electricity every year until 1998.

In 1990 these arrangements were extended to enable renewable generation to be financially viable in the developing electricity market. Under this arrangement, the government periodically issues a call for bids to be submitted under the Non Fossil Fuel Obligation (NFFO). Projects proposed must represent new capacity and must operate on renewable energy. The NFFO is structured to include a number of

technology bands to enable a variety of technologies to contribute to the obligation. The current bands are landfill gas, hydro, wind, municipal and industrial waste, energy crops, combined heat and power schemes and agricultural and forestry waste. Similar arrangements for the funding of renewable energy sources exist for both Scotland and Northern Ireland. To meet these costs, licensed suppliers have to pay a levy, the Fossil Fuel Levy, on the revenue they earn from sales of electricity. In turn, many suppliers pass the cost of paying the levy on to their customers.

Following the flotation of British Energy in July 1996, it was announced that the Fossil Fuel Levy would be reduced to 3.7% for the period November 1996 to 31 March 1997. The levy will be further reduced to 2.2% from1 April 1997. The new rate should be sufficient to cover the continuing obligations in respect of renewable generators and also payments due to the non-privatised part of the nuclear industry, postponed from earlier years.

In Scotland, Scottish Nuclear received a premium payment from Scottish Power and Hydro - Electric. This nuclear premium ended on privatisation of British Energy. However, the fossil fuel levy to cover re-newables obligations will rise from 0.5% to 0.7% from 1st April 1997.

Environmental Protection

In recent years, UK electricity companies have made significant strides towards improved environmental performance. Emissions of carbon dioxide, in terms of units

generated, continue to decline (the reduction in total CO2 emissions from electricity production between 1979 and 1994 was 29%). This continuing fall is being achieved by new gas-fired CCGTs which produce substantially lower emissions than coal-fired plant; increased nuclear output, which produces no carbon dioxide; the development of combined heat and power (CHP); the use of renewable sources and the involvement of the electricity distribution companies in initiatives such as the Energy Saving Trust (EST). Emissions of sulphur dioxide and nitrogen oxides also continue to decline, falling by 46% and 41% respectively in the period 1979-1994.

The UK electricity industry has spent around £180 million retrofitting low nitrogen oxide burners to coal-fired stations and about £1 billion installing flue gas desulphurisation plant at Drax and Ratcliffe-on-Soar power stations. In addition, substantial sums have been spent on new gas-fired replacement capacity. Under the European Large Combustion Plant Directive the UK Government has set the electricity industry annual targets up to the year 2003 for reductions in sulphur dioxide emissions and up to 1998 for nitrogen oxides. In 1994, the electricity industry exceeded its target for reducing sulphur dioxide emissions by 30% and for nitrogen oxide emissions by 32%.

Under the Climate Change Convention agreed at the Rio Earth Summit in June 1992, the Government committed the UK to returning carbon dioxide emissions to 1990 levels by the year 2000. Between 1990 and 1994 the UK target reduction, expressed as carbon, was six mega tonnes per annum. The electricity industry actually achieved a reduction of ten mega tonnes per annum and it is now estimated that its total

reduction for the decade will be in the region of 12 mega tonnes per annum, well ahead of the Government target of ten mega tonnes per annum for the entire UK.

Summary

For the main generators, the profound changes in the industry since 1989 have been a great stimulus to enterprise - new thinking, new ways of doing things, and new approaches to customer services. Productivity has risen sharply as a result. The impact of the changes can be summarised as follows:

1. The new competitive arrangements have undoubtedly worked.

2. The computing software required for the new system to operate successfully had to be very sophisticated.

3. A real-time trading market in electricity has not only been shown to work, but to work efficiently.

4. There have been no problems in reliability of supplies, and the novelty of the new arrangements has proved no barrier to investment in new power plant, either by the existing generators or by new entrants.

5. In the non-franchise market customers have used their freedom aggressively to shop around for supplies and seek the best deals. This customer choice will be extended when the franchise limits are abolished altogether.

So, in important technical areas, where many had doubts initially, the new structure has clearly proved a success. Staff have managed to change their approach; to think about customers and the business first and about financial cost effectiveness in the management of the business.

Clearly, a competitive market in electricity can be made to work, and to work efficiently and effectively in a way that brings benefits to customers, and puts sound commercial pressures on the managements of the electricity companies and their suppliers.

Part 2 The Scottish System

Introduction

Before privatisation, the vertically integrated Scottish electricity supply industry was organised on a very different basis from that in England and Wales. The Scottish experience of privatisation shows that open access and regulation can be applied successfully to this different organisational structure. There were three major electricity companies in Scotland, namely Scottish Power, Hydro-Electric and Scottish Nuclear, which became a wholly-owned subsidiary of British Energy in 1996. Scottish Power and Hydro-Electric are vertically integrated utilities which generate, transmit, distribute and supply electricity. Scottish Nuclear, on the other hand, is a generator connected to Scottish Power's transmission system. Its output, amounting to some 50% of electricity requirements in Scotland, is purchased exclusively by Scottish Power and Hydro-Electric.

When the industry in Scotland was restructured a number of contractual arrangements were put in place to provide each company with a mix of generation sources. For example, Hydro-Electric provides 200 MW of hydro capacity to Scottish Power under contract, while Scottish Power provides Hydro-Electric with 600 MW of coal-fired capacity. Apart from the nuclear stations which were vested in Scottish Nuclear, the only major generation asset to change hands was the 400 MW pumped-storage station at Cruachan, which previously belonged to Hydro-Electric and is now owned by Scottish Power.

The Scottish companies are connected to NGC's transmission system in England and Wales via an inter connector. This connection employs two double circuit overhead transmission lines.

The Electricity Market in Scotland

The principal features of the new electricity market which affect Scottish Power and Hydro-Electric include:

- The opportunity to supply customers with maximum demand in excess of 100kW anywhere in Great Britain
- Trade between companies within Scotland
- Participation in the Pool in England and Wales
- Open access to transmission and distribution systems
- The opportunity to construct and operate generating stations throughout the UK

These opportunities are governed by a set of rules laid down in the licence granted to each company. The licence allows each company to construct and operate generating stations anywhere in Great Britain and to transmit, distribute and supply electricity in its authorised area to tariff customers.

Although the Scottish companies operated as vertically integrated electricity companies, under the regulatory regime their generation, transmission, distribution and supply activities are each treated as separate businesses and each is regulated separately. The licence obliges each company to account separately for each of its businesses, to ensure there is no cross-subsidy and that excessive profit is not made from use-of-system charges. In practice, no difficulties have arisen from the companies remaining vertically integrated and customers have benefited from the resulting economies.

Competition in Generation

The licences for the Scottish companies made provision for generation trading arrangements. However, both companies had capacity available to them, either owned or under contract, which is currently in excess of their requirements. In addition, they had a number of 'must take' contracts for electricity purchases and fuel.

As a consequence, the Regulator decided not to exercise his powers to require the companies to adopt a formal trading system at present within Scotland, although trading does take place on a voluntary basis. As the prospects for new generation

capacity increase, the Regulator will review the need for a detailed set of trading arrangements.

To ensure that appropriate arrangements are made for security of supply, each company will be required to provide the Regulator with an annual statement describing the measures which are being undertaken to ensure that sufficient generation capacity is available to meet territorial demand for the next seven years.

The current absence of a transparent wholesale market in Scotland has led the companies to agree arrangements for alternative suppliers with the Regulator. In effect, these arrangements make electricity available in Scotland from each company to alternative suppliers at the same price as purchases from the Pool in England and Wales. This ensures that customers in Scotland have the same opportunity to contract with an alternative supplier as do customers in England and Wales. On the other hand, the two companies take full advantage of the inter connector with England and Wales to trade in the Pool.

To make better use of existing generation capacity, the interconnection with England was upgraded from a nominal 850 MW to 1,600 MW, with plans in place to increase this capacity to 2,200 MW. Scottish Power has also reached agreement with Northern Ireland Electricity for the construction of a 250 MW DC link between southern Scotland and Northern Ireland. By the end of the decade the export capabilities of the Scottish companies are expected to have expanded by 1,600 MW. The first Scottish Renewable Order (announced in December 1994) was arranged to obtain 76 MW of new generating capacity from 29 schemes using wind, water, waste and biomass

sources. A second Order was launched in November 1995 for 70-80 MW of additional capacity.

Summary

It is clear that a vertically integrated company has no difficulty in meeting the separate regulatory requirements of generation, transmission, distribution and supply activities. Third party access to transmission and distribution systems operates satisfactorily and provides for competition, particularly in relation to prices.
The emergence of competition has also removed constraints on trading with other utilities. Moreover, there are further challenges ahead, in particular the development of formal generation trading arrangements within Scotland, reinforcement of energy efficiency measures, and compliance with the stringent emission limits set by the Government.

Appendix 2

Initiatives at the Power Plant

Introduction

The purpose of this paper is to provide an overview of the initiatives which were live within the power plant at the time of the study (1998 – 2002). These initiatives were in the main initiated from within the Generation business and/or the power plant. Each of the initiatives are categorised into the theoretical categories which were prevalent at the time, as follows: cultural, competency, systems, and structural and are detailed below.

Culture Based Initiatives

During 1997, as part of the company's continuing programme and specifically to prepare for electricity market deregulation in 1998 the company distributed a series videos under the general title "Making It Happen". Eight separate videos were issued, each one for viewing and discussion at the regular monthly team briefings as part of regular practice. Written material was provided to support the video content and the video itself had specific points at which the viewers were invited to pause and discuss the material presented. Subject matter included Deregulation, Company Structure and Corporate Values. The Corporate Values video was supplemented with a pocket sized

pack giving a summary of each of the values and how it was interpreted. Values included "winning", "team working", "safe", etcetera.

The "Making It Happen" series was intended to be a communication exercise, giving staff the opportunity to understand broad business issues. In a company wide staff survey, carried out in late 1997, a significant proportion of staff in the Generation Business felt that the series did not help them understand how Hydro-Electric operates and felt that they learnt more "through the grapevine" than through the formal briefing process. A significant number also stated that they had not had the opportunity to see the videos, so the problem may be related to access to information, rather than understanding it.

In late 1997 and early 1998 a technique known as "Open Book Management" was initiated. Again, a company wide initiative, the technique was created by Springfield Remanufacturing Corporation, a former division of International Harvester in the American mid west and uses the hypothesis that if employees have access to corporate information which shows the value of the company and its departments, then they will be able to link individual effort with corporate success. A key part of the process is the use of "Learning Flowcharts" - a visual representation of key areas of corporate concern. Hydro-Electric has completed the training of facilitators for this technique, the next phase being facilitators cascading understanding of three Learning Maps - "The Race Is On" - illustration of the competitive environment, "Hydro-Electric Money Flow" - corporate accounts and "New Horizons and Opportunities" - future strategy choices.

Competency Based Initiatives

The company uses a Performance Management Scheme which is applicable to all employees. The scheme followed common industrial practice with regular reviews of employee performance against Competency Profiles and targets agreed previously. Reviewing against both Competency Profile and targets provides a link with both a formally stated job description, agreed through a negotiating mechanism, and performance criteria, as identified by the individual and supervisor, relevant to the individual's performance, abilities, effort and the current business environment. A Personal Development Plan is agreed which forms the basis of training and development needs to support achievement of the targets. An Education Support Scheme operates to give support to employees wishing to use external study to support achievement of targets.

The Generation Business had adopted Scottish Vocational Qualifications (SVQ's) as a tool to develop competencies. Key areas have been identified for pilot schemes, Peterhead operations and maintenance staff being two areas locally. The scheme uses the standard SVQ system, with elements being completed by candidates and assessed by assessors. The scheme is administered internally by Internal Verifiers, with an External Verifier providing an independent overview. Approximately 10% of applicable staff members have registered for the scheme and progress through the first unit is underway. A formal, nationally recognised qualification provides a reward for successful progress through the scheme.

System Based Initiatives

At a business level, over 1997, the use of "Key Indicators" has been introduced. Each location determines what its key business indicators are, sets monthly targets, monitors performance against these targets and improves performance as necessary. As described earlier, Plant Key Indicators are based on Safety, Environment, Plant Performance, Cost Control and People Development. Each station department sets its own Key Indicators, supporting the station indicators. Performance is reviewed monthly at station and department level and results are distributed to staff. Key Indicators provide a useful technique to focus discussion and effort around issues which are agreed to be important to the station's performance and help raise awareness of key areas of success and areas which require improvement.

Monitoring Key Indicators has shown that plant performance is an area where improvements could be made. One method to help achieve this is the provision of accurate, easily accessible operating instructions for operations staff. A project is underway which covers the transmittal of instructions to an electronic medium and their subsequent technical review and update. This project provides an opportunity for staff to gain involvement with a key tool for their job, producing instructions which are right for the task.

The station is currently evaluating the use of the international quality standard, ISO9002, as a means of improving quality. Accreditation to the environmental standard, ISO14001, is due in March 1998. The use of formal systems of this type to

improve quality has its advantages and disadvantages. The requirements of the standard "force" the user to adopt systems that demonstrate compliance with the standard - quality or environmental performance. However, a criticism of this type of approach is that the level of beaurocracy means that they can be clumsy and inefficient to operate, making the benefit not justified by the cost. ISO9001 has already been adopted elsewhere in the business - in the asset support function and it is hoped that lessons learnt can be of benefit.

The principles of ISO9002 - identification and documentation of key processes, document control to reduce inefficiencies due to staff not being able to locate correct information, non conformance identification and analysis can clearly be linked to good business performance. Indeed they entirely compatible with the use of Key Indicators, these being merely indicators of the performance of key processes identified in the ISO9002 process.

Structural Initiatives

During 1995 and 1996 the company carried out a job evaluation programme. The programme followed standard industry practice as described by Armstrong[4], identifying benchmarked jobs, evaluating these jobs, slotting other jobs against benchmarked jobs, setting pay scales against an external standard and administering an appeals procedure. The resultant salary scales consist of two zones - the incremental zone and the performance zone. Progress through the incremental zone is expected as part of normal job performance. Since the programme was implemented negotiations have been carried out to agree performance criteria for progress through

the incremental zone. These criteria are currently in the process of being implemented. Progress through the Performance Zone is yet to be fully agreed, with proposals on a bonus or similar system being considered. The use of performance criteria for progress through the incremental zone and, when agreed, progress through the performance zone has important implications for the initiatives described so far. The criteria will be used as part of the performance management process and they will need to be consistent with progress through the SVQ system, otherwise the two systems will not be complementary.

Over the last two years the generation business and the station have restructured to organise around changing circumstances. At a station level the restructuring has created vacancies which have now been filled by external candidates. These new starters represent a valuable resource to challenge the current ways of thinking and provide triggers for new approaches.

The need for organisations to regularly challenge the "cultural paradigm" is illustrated by an observation of the way a particular culture dominates the way in which events are interpreted by staff.

At a departmental level, changes in the Production Department at Peterhead have created an organisational structure which provides a link between operational and shift leader levels. This provides not only a valuable facility for utilising staff more effectively, but also creates a succession route, allowing staff to rise to shift leader level directly through the department, with benefits in motivation.

Summary

The initiatives described above do not exist in isolation, but interact to produce the business results observed.

Appendix 3

Power Station Post 2000

From January 2001 the Power Station will be recognised and measured as being "best in class" in terms of a safety, availability, reliability, efficiency, environment and low cost production.

Context

The aim stated above will only be achieved by having the people, plant and processes in place and working correctly. The object of this paper is to communicate to everyone how we propose to achieve these objectives and the various milestones that will have to be met from now to December 2000.

The change process will have an impact at all levels within the station. It will be the focus of our efforts over the next 18 months to direct the changes required to allow us to achieve our goal. Regular reviews will take place at every level to ensure we progress to plan and are in a position by December 2000 to maximise the new resource at our disposal and reduce our overheads to be competitive with CCGT's.

The construction and integration of the new Gas Turbines and Waste Heat Steam Generators with the existing plant will be completed by the middle of next year. Commercial operation will have been established before the onset of winter. The new staffing structure will be fully implemented by December 2000 and the station will have to be in a position to maximise the new assets at our disposal from that point

onwards. It is important that everyone at the Power Station is aware of what they will be expected to contribute and in which areas we will be striving for continuous improvement.

During the next 18 months we will be going through a major change programme as well as commercially operating Units 1 & 2 and GTs 3&4, and commissioning and integrating a repowered plant. The company's and our own success depends on the success of our plant here at the Power Station. Change of this magnitude will not be easy and will only be achieved if everyone plays their part.

People

The structure published in January will be fully implemented by December 2000. Everyone will be made aware of their roles and responsibilities by their line manager through the performance management system. Every member of staff will take part in 2 formal performance management review each year to discuss their performance and development needs. Formal and on job training programmes will ensure everyone has the required skills to operate, maintain and manage the new plant. Each member of staff will have a personal development plan that records their individual training and development needs and when, and how, that training is going to be carried out.

It is anticipated that the majority of the formal training associated with the repowered plant will be complete by December 1999. The on job training will mainly be carried out during the commissioning phase between October 1999 and May 2000. Those

members of staff who could not participate in the formal training due to operational and budget limitations will gain knowledge and experience of the new system during the commissioning phase.

Staff who are scheduled to leave the station between now and December 2000 have an important role to play in keeping the station operating commercially and developing the systems needed to support the repowered plant.

Plant

Success will only be achieved if the plant is reliable and flexible. Disruption of commercial operation of the existing plant must be minimised throughout the installation, integration and commissioning of the new plant.

High availability of Unit 2 and GTs 3&4 between now and December 2000 is paramount to reduce the impact of Unit 1s commissioning activities and maintain the stations predicted load factor and gas take obligations. From December 2000 onwards Unit 2s operational status has to be consolidated to achieve the operational flexibility outlined at the time of the restructuring announcement. GT 3 & 4s future has yet to be decided but in the meantime they must remain a strategic asset to be used commercially.

The majority of the upgrading work accompanying the repowering project is associated with Unit 1. On return from the 1999 outage, turbine upgrades will improve heat rates and automation and soft desk control will ease operation. The PI and PMAX systems will be developed by March 2000 and configured for CCGT and

Hybrid operation allowing operator access to on-line data interpretation to maximise plant performance. The Burner Management System being developed by Triconex should be operational by March 2000.

Aux. Boilers 3 & 4 will be operational on gas from October 1999 and refurbishment of the oil pipework from the tank farm to the heaters will secure our oil burning capacity. Modifications to the new gas reception facility will be completed in time for testing of the system prior to first fire of GT12 in November 1999. A programme of commissioning of the new GT's and Waste Heat Steam Generators will be complete by April 2000. First steam from the HRSG's to the steam turbine is planned for March 2000 and Hybrid testing will commence in April 2000. All this planned work has to be carried out and integrated into the existing running plant without disrupting our commercial operation. The only planned outage is in March 2000 for making the final connections.

Commercial operation is planned before winter 2000/1, therefore we have a short period from the end of commissioning until October to fine tune our activities and optimise performance.

Processes

With the people and plant in place it is important that we have the processes to support them. All processes must add value to what we are doing, if they do not they should be eliminated.

Provision of a safe working environment is paramount. Development of the existing Isolation System to encompass a Self Applied Isolation system will be ongoing over the next 18 months and staff will need to be trained before any new system is introduced. Safety standards have already been clearly outlined and auditing systems are in place, these will be extended to more staff in an effort to improve the stations safety performance especially in the area of contractor management. Safety zone inspections and housekeeping routines will be developed to deliver standards that put us above our peers.

Environment control systems and performance improvements will be ongoing throughout the next 18 months. The PI and Pmax systems will be utilised to support these functions as well as being developed to improve real time plant efficiency and automated reporting of thermal efficiency and On-line Equipment Effectiveness. Work specifications for operations and maintenance tasks for the existing plant will be reviewed and updated by April 2000 in line with the standards set in ISO9001. Technical information for the repowered plant has to be received and catalogued prior to first fire of GT's in November 1999. Work specifications have to be developed by production and maintenance by September 2000.

A new maintenance and stores system will be installed by April 2000. Maximo will provide systems for preventative maintenance and breakdown scheduling, resource control, stores and spares management and a maintenance records and a work specification library. Roll out of scheduling to "Teams" will be aligned to the introduction of the new system. Spares to the value of £11M are being supplied within the repowering project. The spares have to be identified, specified, agreed,

purchased and accepted into stores by December 2000. Stock levels have to be set and suppliers identified by that date.

The budget will focus on ensuring that work carried out at the Power Station delivers improved plant performance leading to a steady reduction in overheads. Budget development and control will align with the company systems. Outline budgets for 2000/1 will be prepared by October 1999 and will be finalised and approved by March 2000. All annual call off contracts will be in place before the start of the financial year and all capital and revenue projects will be authorised at the time of budget authorisation.

Interfaces between Production, PNC and Energy Trading will have to be developed to suit the operational constraints of the repowered plant. This task needs to be carried out during the commissioning period and has to be fully implemented before the plant becomes commercial. Similarly the interface between Maintenance and Assets needs to be developed further to ensure that capital projects actually deliver improvements in the overall equipment effectiveness (OEE) required by Production. The completion date for this is September 2000.

Everyone on the new structure needs to be aware of our commercial drivers and what we are being measured against. Each team has different drivers and objectives that add collectively to the overall performance of the station. KPI's (key performance indicators) will be developed by each section and must be used regularly to measure current performance and develop improvement plans. All sections will have new KPI's by April 2000.

As stated in the introduction - we will be looking for continual improvement therefore all systems and procedures need to be regularly reviewed and improvements sought. *From January 2001 the Power Station will be recognised and measured as being "best in class" in terms of a safety, availability, reliability, efficiency, environment and low cost production.*

Self Administered Questionnaire Appendix 4

Please take a couple of minutes to complete this survey. The results will be used for my Thesis only and will remain my property. I will be willing to discuss the outcome with those of you who are interested. There will not be a published summary of the survey circulated.
Thank you for your support and help.

SA = Strongly Agree. A = Agree. N = Neutral D = Disagree. SD = Strongly Disagree

	SA	A	N	D	SD
DIRECTION					
Q1. I understand the company's Values.	[ ]	[ ]	[ ]	[ ]	[ ]
Q2. The company is successful in comparison to other Energy Companies.	[ ]	[ ]	[ ]	[ ]	[ ]
Q3. I believe our overall business performance can be significantly improved.	[ ]	[ ]	[ ]	[ ]	[ ]
Q4. I believe it is necessary for all of us to accept continuous improvement if the company is to achieve its objectives.	[ ]	[ ]	[ ]	[ ]	[ ]
Q5. I believe the company will continue to change as a result of competition.	[ ]	[ ]	[ ]	[ ]	[ ]
Q6. I am confident that the company has a successful future.	[ ]	[ ]	[ ]	[ ]	[ ]
Q7. I am proud to work for the company.	[ ]	[ ]	[ ]	[ ]	[ ]
Q8. The company acts with integrity.	[ ]	[ ]	[ ]	[ ]	[ ]
Q9. I believe my job in the future will be different from today.	[ ]	[ ]	[ ]	[ ]	[ ]
Q10. I am confident about my future employment in the company.	[ ]	[ ]	[ ]	[ ]	[ ]
Q11. The executive as a team provides consistent direction and leadership.	[ ]	[ ]	[ ]	[ ]	[ ]
CHANGE					
Q12. In general, changes in my part of the business have been managed well.	[ ]	[ ]	[ ]	[ ]	[ ]
Q13. I believe my immediate boss presents change to me in an open and honest way.	[ ]	[ ]	[ ]	[ ]	[ ]
Q14. I believe I have been involved in changes that affect me.	[ ]	[ ]	[ ]	[ ]	[ ]
Q15. When change is necessary, Senior Managers show concern about the effect on staff.	[ ]	[ ]	[ ]	[ ]	[ ]
Q16. I believe the pace of change within the company is too fast	[ ]	[ ]	[ ]	[ ]	[ ]
Q17. I believe the performance of the company will improve as a result of change	[ ]	[ ]	[ ]	[ ]	[ ]

	SA	A	N	D	SD
SAFETY					
Q18. The company is concerned for the safety of staff.	[ ]	[ ]	[ ]	[ ]	[ ]
Q19. My immediate boss gives priority to safety.	[ ]	[ ]	[ ]	[ ]	[ ]
Q20. I am responsible for the safety of my colleagues.	[ ]	[ ]	[ ]	[ ]	[ ]
Q21. I am responsible for my own safety.	[ ]	[ ]	[ ]	[ ]	[ ]
Q22. I believe we have a realistic balance between safety, cost and units sent out.	[ ]	[ ]	[ ]	[ ]	[ ]
QUALITY					
Q23. I am aware of the standards to which I should be working.	[ ]	[ ]	[ ]	[ ]	[ ]
Q24. I am responsible for the quality of my work.	[ ]	[ ]	[ ]	[ ]	[ ]
Q25. My immediate boss encourages me to do good quality work.	[ ]	[ ]	[ ]	[ ]	[ ]
Q26. Quality work is expected in by the company.	[ ]	[ ]	[ ]	[ ]	[ ]
PERFORMANCE MANAGEMENT					
Q27. My immediate boss has agreed with me what I have to achieve in my job.	[ ]	[ ]	[ ]	[ ]	[ ]
Q28. I understand why my job is important in the achievement of our team goals.	[ ]	[ ]	[ ]	[ ]	[ ]
Q29. I have sufficient freedom to carry out my job effectively.	[ ]	[ ]	[ ]	[ ]	[ ]
Q30. I am normally involved in decisions affecting my work.	[ ]	[ ]	[ ]	[ ]	[ ]
Q31. My immediate boss reviews my performance regularly with me.	[ ]	[ ]	[ ]	[ ]	[ ]
Q32. My boss ensures I receive all the help, guidance and training I need to perform effectively.	[ ]	[ ]	[ ]	[ ]	[ ]
Q33. The company provides me with opportunities for self-development in line with the needs of the business.	[ ]	[ ]	[ ]	[ ]	[ ]
Q34. I believe I am fairly rewarded for my work.	[ ]	[ ]	[ ]	[ ]	[ ]
Q35. My overall terms and conditions are fair in comparison to other companies in my locality.	[ ]	[ ]	[ ]	[ ]	[ ]
Q36. I get a lot of satisfaction from the job I do.	[ ]	[ ]	[ ]	[ ]	[ ]
Q37. Using my initiative is likely to be welcomed by the company.	[ ]	[ ]	[ ]	[ ]	[ ]

	SA	A	N	D	SD
LEADERSHIP					
Q38. Senior Managers are genuinely concerned for staff.	[ ]	[ ]	[ ]	[ ]	[ ]
Q39. My immediate boss asks what we can learn when things go wrong.	[ ]	[ ]	[ ]	[ ]	[ ]
Q40. My immediate boss gives a positive encouraging view of the future of our company.	[ ]	[ ]	[ ]	[ ]	[ ]
COMMUNICATIONS					
Q41. I am given the opportunity to express my views and opinions.	[ ]	[ ]	[ ]	[ ]	[ ]
Q42. I am kept informed about what changes are happening within the company.	[ ]	[ ]	[ ]	[ ]	[ ]
Q43. My immediate boss normally explains why a decision has been made.	[ ]	[ ]	[ ]	[ ]	[ ]
Q44. Day-to-day communication between work groups within the plant is good.	[ ]	[ ]	[ ]	[ ]	[ ]
Q45. Day-to-day communication between work groups within the company is good.	[ ]	[ ]	[ ]	[ ]	[ ]
Q46. I take part in regular team meetings.	[ ]	[ ]	[ ]	[ ]	[ ]
Q47. I receive sufficient information to allow me to do my job properly.	[ ]	[ ]	[ ]	[ ]	[ ]
TEAMWORK					
Q48. I believe effective teamwork is important to the future of the company.	[ ]	[ ]	[ ]	[ ]	[ ]
Q49. I feel part of an effective team.	[ ]	[ ]	[ ]	[ ]	[ ]
Q50. My team is more effective than it was 12 months ago.	[ ]	[ ]	[ ]	[ ]	[ ]
Q51. Our team receives good support from other teams for the work we do.	[ ]	[ ]	[ ]	[ ]	[ ]
GENERAL					
Q52. I believe there has been improvement in company performance in the following areas:					
Environmental	[ ]	[ ]	[ ]	[ ]	[ ]
Technological	[ ]	[ ]	[ ]	[ ]	[ ]
Operational	[ ]	[ ]	[ ]	[ ]	[ ]
Financial	[ ]	[ ]	[ ]	[ ]	[ ]
Safety	[ ]	[ ]	[ ]	[ ]	[ ]
Q53. I believe that any improvements in performance are as a result of change.	[ ]	[ ]	[ ]	[ ]	[ ]

Please use this section to expand on any of your above responses :

About You:

Please tick which best describes your function:

- **Operations** [ ]
- **Maintenance** [ ]
- **Engineering** [ ]
- **Business Support** [ ]
- **Specialist Support** [ ]

Please tick the appropriate years of service with the company

- **Less than 5 years** [ ]
- **More than 5 but Less than 10 years** [ ]
- **More than 10 years** [ ]

Please return completed survey to:

Ed Barclay - Production Support

Semi-Structured Interviews Appendix 5

Change Management

Culture

1. Often we hear "it is the culture which will determine whether or not employees will stay with their organisation or not". Do you agree with this statement?

   Describe for me the current culture within the company as you perceive it.

2. Would you agree that the culture, for you, would determine whether or not you would stay with the organisation?
3. How important is it to you to know that the organisation is interested in your occupational and educational opportunities? Please expand on answer.
4. Have you had any internal/external training in the past year?

   If so, how effective has it been?

   Have you highlighted to anyone recently, any training, which would help to improve you, your job or your future aspirations?

   Have these requests been actioned in anyway?

Development

1. Was development discussed and/or planned within your induction programme? If yes, expand please.
2. Was the plan carried out?

Performance Management

- Have you received an appraisal within the last year YES/No
- Was your "career" discussed that is, programmes/paths for the future?

Organisational Strategy

- ➢ Do you know what the Company/Business/Plant business plans are?
- ➢ Do you know how you, as an individual, contribute to the overall performance of the organisation?
- ➢ How would you describe the level of support you receive, in terms of development from the organisation?

Reward

1. In your opinion, is there a link between recognition and reward in the organisation?
2. Do you think that reward and development should be linked, if so how?
3. Responsibility – in your opinion, who is responsibility is career development?
4. Given financial aid may be restricted, how can the organisation contribute to your continued development?
5. Do you think training is profitable for the company?

A Priori Comparisons Appendix 6

DIRECTION

Q No	Statement	Mean	Sample	Apriori
1	I understand the company's values.	2.71	A	A
2	The company is successful in comparison with other Energy Companies.	1.94	A	A
3	I believe our overall business performance can be significantly improved.	2.31	A	A
4	I believe it is necessary for all of us to accept continuous improvement if the company is to achieve its objectives.	2.17	A	N
5	I believe the company will continue to change as a result of competition.	1.80	A	N
6	I am confident that the company has a successful future.	2.71	A	A
7	I am proud to work for the company.	3.10	N	A
8	The company acts with integrity.	3.46	D	D
9	I believe my job in the future will be different from today.	1.96	A	D
10	I am confident about my future employment with the company.	3.23	N	A
11	The executive as a team provides consistent direction and leadership.	3.63	D	D

CHANGE

Q No	Statement	Mean	Sample	Apriori
12	In general, changes in my part of the business have been managed well.	3.88	D	N
13	I believe my immediate boss presents change to me in an open and honest way.	2.67	A	A
14	I believe I have been involved in changes that affect me.	3.33	D	D
15	When change is necessary, Senior Managers show concern about the effect on staff.	4.31	D	D
16	I believe the pace of change within the company is too fast.	2.85	N	A
17	I believe the performance of the company will improve as a result of change.	3.21	N	N

SAFETY

Q No	Statement	Mean	Sample	Apriori
18	The company is concerned for the safety of staff.	2.08	A	A
19	My immediate boss gives priority to safety.	1.94	A	N
20	I am responsible for the safety of my colleagues.	1.62	A	A
21	I am responsible for my own safety.	1.39	A	A
22	I believe we have a realistic balance between safety, cost and units sent out.	3.21	N	D

QUALITY

Q No	Statement	Mean	Sample	Apriori
23	I am aware of the standards to which I should be working.	2.25	A	A
24	I am responsible for the quality of my work.	1.71	A	A
25	My immediate boss encourages me to do geed quality work.	2.10	A	N
26	Quality work is expected in the company.	2.40	N	D

PERFORMANCE MANAGEMENT

Q No	Statement	Mean	Sample	Apriori
27	My immediate boss has agreed with me what I have to achieve in my job.	2.23	A	N
28	I understand why my job is important in the achievement of our team goals.	2.25	A	A
29	I have sufficient freedom to carry out my job effectively.	2.50	A	D
30	I am normally involved in decisions affecting my work.	2.77	N	N
31	My immediate boss reviews my performance regularly with me.	2.44	A	A
32	My boss ensures I receive all the help, guidance and training I need to perform effectively.	3.10	N	D
33	The company provides me with opportunities for self development in line with the needs of the business.	3.58	D	N
34	I believe I am fairly rewarded for my work.	3.25	N	N
35	My overall terms and conditions are fair in comparison to other companies in my locality.	3.40	D	N
36	I get a lot of satisfaction from the job I do.	2.80	N	D
37	Using my initiative is likely to be welcomed by the company.	3.15	N	N

LEADERSHIP

Q No	Statement	Mean	Sample	Apriori
38	Senior Managers are genuinely concerned for staff.	3.73	D	N
39	My immediate boss asks what we can learn when things go wrong.	2.30	A	A
40	My immediate boss gives a positive encouraging view of the future of our company.	2.96	N	A

COMMUNICATIONS

Q No	Statement	Mean	Sample	Apriori
41	I am given the opportunity to express my views and opinions.	2.44	A	A
42	I am kept informed about what changes are happening within the company.	3.00	N	D
43	My immediate boss normally explains why a decision has been made.	2.75	N	A
44	Day-to-day communication between work groups within the plant is good.	3.85	D	N
45	Day-to-day communication between work groups within the company is good	4.00	D	N
46	I take part in regular Agenda meetings.	1.92	A	A
47	I receive sufficient information to allow me to do my job properly.	3.06	N	D

TEAMWORK

Q No	Statement	Mean	Sample	Apriori
48	I believe effective teamwork is important to the future of the company.	1.65	A	A
49	I feel part of an effective team.	2.46	A	A
50	My team is more effective than it was 12 months ago.	3.29	N	N
51	Our team receives good support from other teams for the work we do.	3.54	D	N

GENERAL :

52. I believe there has been improvement in company performance in the following areas:

Q No	Statement	Mean	Sample	Apriori
52E	Environmental	2.38	N	D
52T	Technological	2.94	N	N
52O	Operational	3.21	N	N
52F	Financial	2.63	A	A
52S	Safety	2.40	A	A
53	I believe that any improvements in performance are as a result of change	3.08	N	A

One Way t Test Results Appendix 7

DIRECTION

Variable	N	Mean	St Dev	T	P	Test
Q1	48	2.71	0.91	-6.37	0.000	Mu = 3 vs < 3
Q2	48	1.94	0.84	-8.81	0.000	Mu = 3 vs < 3
Q3	48	2.31	0.97	-4.91	0.000	Mu =3 vs not 3
Q4	48	2.17	0.78	-7.39	0.000	Mu =3 vs not 3
Q5	48	1.80	0.65	-12.86	0.000	Mu = 3 vs < 3
Q6	48	2.71	0.99	-2.04	0.023	Mu = 3 vs < 3
Q7	48	3.10	1.11	0.52	0.302	MU = 3 vs > 3
Q8	48	3.46	1.10	2.91	0.003	MU = 3 vs > 3
Q9	48	1.96	0.74	-9.72	0.000	Mu = 3 vs < 3
Q10	48	3.23	1.13	1.40	0.084	MU = 3 vs > 3
Q11	48	3.63	1.10	3.92	0.000	MU = 3 vs > 3

CHANGE

Variable	N	Mean	St Dev	T	P	Test
Q12	48	3.88	1.10	5.49	0.000	Mu =3 vs not 3
Q13	48	2.67	1.24	-1.86	0.035	Mu = 3 vs < 3
Q14	48	3.33	1.36	1.7	0.048	MU = 3 vs > 3
Q15	48	4.31	0.90	10.1	0.000	MU = 3 vs > 3
Q16	48	2.85	1.13	-0.90	0.188	Mu = 3 vs < 3
Q17	48	3.21	1.1	1.32	0.192	Mu =3 vs not 3

SAFETY

Variable	N	Mean	St Dev	T	P	Test
Q18	48	2.08	0.94	-6.75	0.000	Mu = 3 vs < 3
Q19	48	1.94	0.73	-10.13	0.000	Mu =3 vs not 3
Q20	48	1.62	0.61	-15.72	0.000	Mu = 3 vs < 3
Q21	48	1.39	0.61	-18.22	0.000	Mu = 3 vs < 3
Q22	48	3.21	1.15	1.26	0.107	MU = 3 vs > 3

QUALITY

Variable	N	Mean	St Dev	T	P	Test
Q23	48	2.25	1.00	-5.20	0.000	Mu = 3 vs < 3
Q24	48	1.71	0.50	-17.77	0.000	Mu = 3 vs < 3
Q25	48	2.10	0.86	-7.25	0.000	Mu =3 vs not 3
Q26	48	2.40	1.12	-3.72	1.00	MU = 3 vs > 3

PERFORMANCE MANAGEMENT

Variable	N	Mean	St Dev	T	P	Test
Q27	48	2.23	0.90	-5.90	0.000	Mu = 3 vs < 3
Q28	48	2.25	0.91	-5.70	0.000	Mu = 3 vs < 3
Q29	48	2.50	1.15	-3.02	0.002	Mu =3 vs not 3
Q30	48	2.77	1.17	-1.36	0.182	Mu =3 vs not 3
Q31	48	2.44	0.99	-3.95	0.000	Mu = 3 vs < 3
Q32	48	3.10	1.24	0.58	0.282	Mu = 3 vs < 3
Q33	48	3.58	1.18	3.42	0.001	MU = 3 vs > 3
Q34	48	3.25	1.18	1.47	0.147	MU = 3 vs > 3
Q35	48	3.40	1.16	2.36	0.022	Mu = 3 vs < 3
Q36	48	2.80	1.32	-1.09	0.860	MU = 3 vs > 3
Q37	48	3.15	1.15	0.89	0.376	MU = 3 vs > 3

LEADERSHIP

Variable	N	Mean	St Dev	T	P	Test
Q38	48	3.73	1.16	4.35	0.000	Mu =3 vs not 3
Q39	48	2.30	0.99	-4.97	0.000	Mu = 3 vs < 3
Q40	48	2.96	0.99	-0.92	0.386	Mu = 3 vs < 3

TEAMWORKING

Variable	N	Mean	St Dev	T	P	Test
Q48	48	1.65	0.70	-13.42	0.000	Mu = 3 vs < 3
Q49	48	2.46	1.03	-3.64	0.000	Mu = 3 vs < 3
Q50	48	3.29	1.17	1.73	0.090	Mu =3 vs not 3
Q51	48	3.54	1.18	3.17	0.003	Mu =3 vs not 3

COMMUNICATIONS

Variable	N	Mean	St Dev	T	P	Test
Q41	48	2.44	1.01	-3.86	0.000	Mu = 3 vs < 3
Q42	48	3.00	1.13	0.00	1.00	Mu =3 vs not 3
Q43	48	2.75	1.16	-1.15	0.071	Mu = 3 vs < 3
Q44	48	3.85	1.11	5.33	0.000	Mu =3 vs not 3
Q45	48	4.00	1.05	6.59	0.000	Mu =3 vs not 3
Q46	48	1.92	0.68	-11.05	0.000	Mu = 3 vs < 3
Q47	48	3.06	1.17	0.37	0.357	MU = 3 vs > 3

GENERAL

Variable	N	Mean	St Dev	T	P	Test
Q52E	48	2.38	0.96	-4.51	1.00	MU = 3 vs > 3
Q52T	48	2.94	1.16	-0.37	0.71	Mu =3 vs not 3
Q52O	48	3.21	1.20	1.20	0.24	Mu =3 vs not 3
Q52F	48	2.63	1.08	-2.40	0.010	Mu = 3 vs < 3
Q52S	48	2.40	1.21	-3.44	0.001	Mu = 3 vs < 3
Q53	48	3.08	1.15	0.50	0.692	Mu = 3 vs < 3

Chi-Square Test Results Appendix 8

Results for: 2003 survey n = 48A.MTW

Factor Analysis: q1, q2, q3, q4, q5, q6, q7, q8, q9, q10, q11

FACTOR ANALYSIS DIRECTION (D)

Principal Component Factor Analysis of the Correlation Matrix

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Factor3	Communality
q7		0.000	0.000	0.734
q10		0.000	0.000	0.619
q8		0.000	0.000	0.532
q11		0.000	0.000	0.506
q6		0.000	0.000	0.512
q1		0.000	0.000	0.520
q5	0.000	0.815	0.000	0.677
q2	0.000	0.654	0.000	0.651
q4	0.000	0.000	-0.741	0.609
q3	0.000	0.000	-0.698	0.490
q9	0.000	0.000	-0.561	0.329
Variance	3.2151	1.4837	1.4793	6.1780
% Var				

Results for: 2003 survey n = 48.MTW

Factor Analysis: q12, q13, q14, q15, q16, q17

FACTOR ANALYSIS CHANGE (C)

Principal Component Factor Analysis of the Correlation Matrix

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q14	[redacted]	0.000	0.755
q12	[redacted]	0.000	0.702
q13	[redacted]	0.000	0.552
q15	[redacted]	0.000	0.451
q16	0.000	0.904	0.817
q17	0.000	-0.645	0.602
Variance	2.4034	1.4758	3.8791
% Var	[redacted]		

Results for: 2003 survey n = 48.MTW

Factor Analysis: q18, q19, q20, q21, q22

FACTOR ANALYSIS SAFETY (S)

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q18	[redacted]	0.000	0.871
q19	[redacted]	0.000	0.674
q22	[redacted]	0.000	0.448
q21	0.000	0.868	0.768
q20	0.000	0.856	0.756
Variance	1.9686	1.5472	3.5158
% Var	[redacted]		

Results for: 2003 survey n = 48.MTW

Factor Analysis: q23, q24, q25, q26

FACTOR ANALYSIS QUALITY (QA)

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q23	[redacted]	0.000	0.817
q26	[redacted]	0.000	0.777
q24	0.000	0.854	0.734
q25	0.000	0.843	0.720
Variance	1.5473	1.5017	3.0490
% Var	[redacted]		

Results for: 2003 survey n = 48.MTW

Factor Analysis: q27, q28, q29, q30, q31, q32, q33, q34, q35, q36, q37

FACTOR ANALYSIS PERFORMANCE MGT (PM)

Varimax Rotation

Variable	Factor1	Factor2	Factor3	Communality
q37	[redacted]	0.000	0.000	0.665
q29	[redacted]	0.000	0.000	0.594
q30	[redacted]	0.000	0.000	0.558
q36	[redacted]	0.000	0.000	0.591
q32	[redacted]	0.000	0.542	0.697
q28	[redacted]	0.000	0.000	0.271
q35	0.000	-0.864	0.000	0.793
q34	0.000	-0.859	0.000	0.779
q31	0.000	0.000	0.872	0.780
q27	0.000	0.000	0.775	0.643
q33	0.000	0.000	0.000	0.289
Variance	2.9926	1.8337	1.8329	6.6592
% Var	[redacted]			

Results for: 2003 survey n = 48.MTW

Factor Analysis: q38, q39, q40

FACTOR ANALYSIS LEADERSHIP (L)

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q38	[redacted]	0.000	0.772
q40	[redacted]	0.000	0.712
q39	0.000	0.979	0.992
Variance	1.4487	1.0270	2.4757
% Var	[redacted]		

Results for: 2003 survey n = 48.MTW

Factor Analysis: q41, q42, q43, q44, q45, q46, q47

COMMUNICATIONS (CM)

Principal Component Factor Analysis of the Correlation Matrix

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q47	[redacted]	0.000	0.749
q41	[redacted]	0.000	0.662
q45	[redacted]	0.000	0.655
q44	[redacted]	-0.546	0.715
q46	0.000	-0.877	0.791
q43	0.000	-0.602	0.579
q42	[redacted]	-0.595	0.609
Variance	2.9288	1.8309	4.7597
% Var	[redacted]		

Results for: 2003 survey n = 48.MTW

Factor Analysis: q48, q49, q50, q51

FACTOR ANALYSIS TEAMWORKING (T)

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q50		0.000	0.757
q51		0.000	0.691
q49		-0.503	0.543
q48	0.000	-0.945	0.896
Variance	1.7190	1.1689	2.8879
% Var			

Results for: 2003 survey n = 48.MTW

Factor Analysis: q52 -E, q52 - T, q52 - O, q52 - F, q52 - S, q53

FACTOR ANALYSIS GENERAL (G)

Sorted Rotated Factor Loadings and Communalities

Varimax Rotation

Variable	Factor1	Factor2	Communality
q52 - T		0.000	0.635
q52 -E		0.000	0.605
q52 - O		0.000	0.718
q52 - F	0.000	0.863	0.746
q53	0.000	0.730	0.581
q52 - S		0.580	0.655
Variance	2.1034	1.8365	3.9399
% Var			

Factor Correlated Relationships Appendix 9

DIRECTION

Factor	Quest No	Mean	Description
D1	7	3.10	Proud to work for company.
	10	3.23	Confident about future employment.
	8	3.46	The company acts with integrity.
	11	3.63	Executive provide consistent leadership and guidance.
	6	2.71	Confident that company has a successful future.
	1	2.71	Understanding of company values.
D2	5	1.80	Company will continue to change because of Competition.
	2	1.94	Company successful in comparison to other energy Companies.
D3	4	2.17	Acceptance of continuous change to achieve objectives.
	3	2.31	Business performance can be significantly improved.
	9	1.96	Job in future different than to days.

CHANGE

Factor	Quest No	Mean	Description
C1	14	3.33	Belief of being involved in change.
	12	3.88	Change was managed well in my part of the business.
	13	2.67	Immediate boss presents change openly and honestly.
	15	4.31	Senior managers show concern for the effect of change on staff.
C2	16	2.85	The pace of change is too fast.
	17	3.21	Company performance improved as a result of change.

SAFETY

Factor	Quest No	Mean	Description
S1	18	2.08	Company concerned for the safety of staff.
	19	1.94	Immediate boss gives priority to safety.
	22	3.21	Realistic balance between safety, cost, and production.
S2	21	1.39	Responsible for own safety.
	20	1.62	Responsible for colleagues' safety.

QUALITY

Factor	Quest No	Mean	Description
QA1	23	2.25	Awareness of job standards.
	26	2.40	Company expect quality work.
QA2	24	1.71	Responsible for quality of own work.
	25	2.10	Immediate boss encourages quality work.

PERFORMANCE MANAGEMENT

Factor	Quest No	Mean	Description
PM1	37	3.15	Using initiative is welcomed by the company.
	29	2.50	Sufficient freedom to carry out job effectively.
	30	2.77	Involved in decisions affecting my work.
	36	2.80	I get a lot of satisfaction from the job.
	32	3.10	Receive help, guidance, and training needed to perform effectively.
	28	2.25	Understand importance of job in achieving team goals.
PM2	35	3.40	Terms and Conditions are fair.
	34	3.25	Fairly rewarded for the work I do.
PM3	31	2.44	Personal performance reviewed regularly.
	27	2.23	Targets and objectives agreed mutually with boss.

LEADERSHIP

Factor	Quest No	Mean	Description
L1	38	3.73	Senior managers genuinely concerned for staff.
	40	2.96	Positive and encouraging view of company's future By immediate boss.
L2	39	2.30	Encouraged to learn from mistakes.

COMMUNICATIONS

Factor	Quest No	Mean	Description
CM1	47	3.06	Receive sufficient information to do job properly.
	41	2.44	Opportunity to express opinions and views.
	45	4.00	Day-day communications between company teams good.
	44	3.85	Day-day communications between plant teams good.
	42	3.00	Informed about changes within the company.
CM2	44	3.85	Day-day communications between plant teams good.
	46	1.92	Take part in regular team meetings.
	43	2.75	Immediate boss explains why decisions made.
	42	3.00	Informed about changes within the company.

TEAMWORK

Factor	Quest No	Mean	Description
T1	50	3.29	Own team more effective now than last year.
	51	3.54	Team receives good support from other teams.
	49	2.46	I feel part of an effective team.
T2	49	2.46	I feel part of an effective team.
	48	1.65	Effective team working important to company's future.

GENERAL

Factor	Quest No	Mean	Description
G1	52T	2.94	Company technical performance improved.
	52E	2.38	Company environmental performance improved.
	52O	3.21	Company operational performance improved.
	52S	2.40	Company safety performance improved.
G2	52F	2.63	Company financial performance improved.
	53	3.08	Performance improved as a direct result of change.
	52S	2.40	Company safety performance improved.